

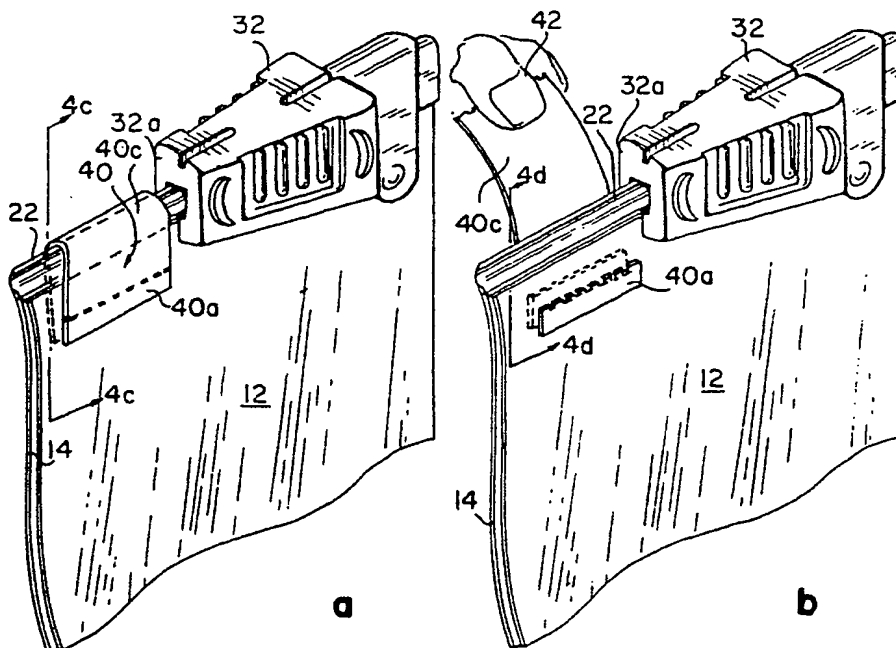


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(54) Title: TAMPER-EVIDENT SLIDER BAG**(57) Abstract**

A plastic bag comprises opposing body panels (12, 14) fixedly connected to each other along a pair of sides and a bottom bridging the pair of sides. A reclosable zipper (32) extending along a mouth portion formed opposite the sealed bottom of the plastic bag. The zipper is preferably free of graspable upper pull flanges in order to best accommodate a slider (32) and inhibit operation of the zipper without the slider (32). The slider (32) is mounted to the zipper for movement between a closed position and an open position. The zipper is closed while the slider is in the closed position. The zipper is opened in response to movement of the slider to the open position. To inhibit tampering with the contents of the bag, the bag includes a tamper-evident feature (40). In one set of embodiments, the tamper-evident feature (40) initially maintains the slider in the closed position and allows the slider to move away from the closed position toward the open position in response to removing or breaking the tamper-evident feature. In another set of embodiments, the tamper-evident feature initially maintains a mouth portion of the plastic bag in a folded position and allows the mouth portion to be unfolded in response to removing or breaking the tamper-evident feature.



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TAMPER-EVIDENT SLIDER BAG

FIELD OF THE INVENTION

The present invention generally relates to reclosable plastic bags and, more particularly, relates to a reclosable plastic bag having a tamper-evident feature. In one set of embodiments, the plastic bag has a zipper opened and closed using a slider mounted to the zipper, and the tamper-evident feature initially maintains the slider at a closed position on the zipper and allows the slider to move away from the closed position to an open position on the zipper in response to removing or breaking the tamper-evident feature. In another set of embodiments, the tamper-evident feature initially maintains a mouth portion of the plastic bag in a folded position and allows the mouth portion to be unfolded in response to removing or breaking the tamper-evident feature.

BACKGROUND OF THE INVENTION

Reclosable slider bags of the type disclosed in U.S. Patent No. 5,067,208 include a zipper that is opened and closed by movement of a slider mounted to the zipper. Due to the ease of operating the slider, such slider bags have increased in popularity over the last few years. Heretofore, the primary market for slider bags has been consumers who purchase a package of empty slider bags and then fill the slider bags with products at home. However, with the increasing popularity of the slider bags, product manufacturers have become interested in packaging their food and nonfood products in slider bags for sale to consumers. The slider bags are a great convenience to the consumer who purchases these product-filled bags especially for products of the type where only a portion of the product is used at any given time. The product applications for which slider bags may be useful are virtually unlimited. The consumer may initially open the slider bag, use a portion of the product, and then easily reclose the slider bag. Due to the ease of using the slider bag, the slider bag is typically preferred over one-time openable bags, which are significantly more difficult to open and reclose. To open a one-time openable bag, the consumer may need to tear the bag open and may require a scissors or other tool to facilitate the opening process; to reclose the bag, the consumer typically must roll the top of the bag closed and may

require an extra fastening mechanism such as a clip, tie, or tape to maintain the bag in the closed position.

A problem with plastic slider bags is that if such bags are to be prepackaged with a food or non-food product and then sold in a store, the contents of the plastic bags can easily be tampered with prior to purchase by the consumer. To inhibit such tampering, slider bags have been provided with tamper-evident features of the type disclosed in U.S. Patent Nos. 5,669,715; 5,713,669; and 5,775,812. While such tamper-evident features are capable of providing tamper evidence upon opening the bag, bag manufacturers such as the assignee of the foregoing patents are continually striving to develop new bag features for improving the functionality of their bags.

SUMMARY OF THE INVENTION

To that end, the present invention provides a plastic bag comprising first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging the pair of sides. The bag is provided with a reclosable zipper extending along a mouth portion formed opposite the sealed bottom of the plastic bag. The zipper is preferably free of graspable upper pull flanges in order to best accommodate a slider and inhibit operation of the zipper without the slider. The slider is slidably mounted to the zipper for movement between a closed position and an open position. The zipper is closed while the slider is in the closed position. The zipper is opened in response to movement of the slider to the open position. The bag optionally includes end terminations at opposite ends of the zipper to prevent the slider from going past the ends of the zipper. To provide the plastic bag with tamper evidence, the bag includes a tamper-evident feature.

In one set of embodiments, the tamper-evident feature initially maintains the slider in the closed position and allows the slider to move away from the closed position toward the open position in response to removing or breaking the tamper-evident feature. The tamper-evident feature may take a variety of forms including for example: a removable cardboard, paper, or plastic member covering or adjacent to the slider in the closed position and adhered, stapled, friction fit, or connected in some other way to the bag to hold the member in place; a removable flexible member extending through a hole in the slider or through a hole in the zipper adjacent to the

slider in the closed position; a removable stepped retaining element removably attached to one of the bag body panels near the closed position of the slider such that a shoulder of the slider is initially engaged to the stepped element and is disengaged therefrom upon removal of the stepped element; a latch connected to the end termination and releasably engaged to the slider in the closed position; a latch connected to the slider and releasably engaged to the end termination when the slider is in the closed position; and a removable U-shaped element extending through slots in the slider in the closed position and dug into the zipper.

The tamper-evident features noted above initially maintain the slider in the closed position. Therefore, prior to removing or breaking the tamper-evident feature, it is difficult to gain access to the interior of the bag because, in the absence of graspable upper flanges, the zipper is difficult to grasp and open by hand without the use of the slider. After the tamper-evident feature is removed or broken, the slider may be used to open the zipper and access the contents of the bag.

In another set of embodiments, the tamper-evident feature initially maintains the mouth portion of the plastic bag in a folded position and allows the mouth portion to be unfolded in response to removing or breaking the tamper-evident feature. The tamper-evident feature can be employed with both slider and sliderless bags and may take a variety of forms including for example: spot seals detachably sealing the sides of the folded mouth portion to the sides of the bag; spot seals detachably sealing the inner panel of the folded mouth portion to the adjacent bag panel; a removable flexible member passing through both the folded mouth portion and the adjacent unfolded portion of the bag; one or more stickers (adhesive strips) attaching the folded mouth portion to the adjacent unfolded portion of the bag; and combinations of the foregoing. If the flexible member or sticker is employed and the plastic bag includes a slider for operating the zipper, the flexible member or sticker may be strategically positioned to perform the dual function of maintaining the mouth portion in the folded position and preventing the slider from being moved away from the closed position until the flexible member or sticker is removed from the bag.

The tamper evident features of the present invention effectively inhibit tampering with contents of the bag to a degree that is especially useful for non-food

and some food applications, where tamper-proof packaging is not required but tamper-resistant packaging is nonetheless desirable.

BRIEF DESCRIPTION OF THE DRAWINGS

5 Other objects and advantages of the invention will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is an isometric view of a reclosable plastic slider bag having a slider mounted to a zipper in a closed position;

10 FIG. 2 is an isometric view of a mouth portion of the slider bag showing the slider moved away from the closed position so that the zipper is partially opened;

FIG. 3 is a sectional view taken generally along line 3-3 in FIG. 1;

FIG. 4a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a removable adhesive label;

15 FIG. 4b is an enlarged isometric view of the slider bag showing the adhesive label in the process of being removed from the bag;

FIG. 4c is a sectional view taken generally along line 4c-4c in FIG. 4a;

FIG. 4d is a sectional view taken generally along line 4d-4d in FIG. 4b;

20 FIG. 5a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a flexible member, such as a price tag pin, extending through a hole in the slider;

FIG. 5b is a partial isometric view of the slider bag showing the flexible member in the process of being cut away from the slider;

FIG. 5c is a sectional view taken generally along line 5c-5c in FIG. 5a;

25 FIG. 5d is a sectional view taken generally along line 5d-5d in FIG. 5b;

FIG. 6a is a partial isometric view of a slider bag having a tamper-evident feature in the form of flexible member, such as a price tag pin, extending through a hole in the zipper adjacent to the slider in the closed position;

30 FIG. 6b is a partial isometric view of the slider bag showing the flexible member in the process of being cut away from the zipper;

FIG. 6c is a sectional view taken generally along line 6c-6c in FIG. 6a;

FIG. 6d is a sectional view taken generally along line 6d-6d in FIG. 6b;

FIG. 7a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a stepped retaining element attached to one of the bag body panels and engaging a shoulder of the slider in the closed position;

FIG. 7b is a partial isometric view of the slider bag showing the stepped retaining element in the process of being detached from the bag body panel and disengaged from the slider;

FIG. 7c is a sectional view taken generally along line 7c-7c in FIG. 7a;

FIG. 7d is a sectional view taken generally along line 7d-7d in FIG. 7b;

FIG. 7e is a partial isometric view of a slider bag having a tamper-evident feature in the form of a stepped retaining element integrally formed with a slider end stop and engaging a shoulder of the slider in the closed position;

FIG. 7f is a partial isometric view of the slider bag showing the stepped retaining element in the process of being detached from the slider end stop and disengaged from the slider;

FIG. 7g is a sectional view taken generally along line 7g-7g in FIG. 7e;

FIG. 7h is a sectional view taken generally along line 7h-7h in FIG. 7f;

FIG. 8a is a partial isometric view of a slider bag having a tamper-evident feature in the form of shrink wrap encapsulating the slider in the closed position;

FIG. 8b is a partial isometric view of the slider bag showing the shrink wrap in the process of being removed from the bag;

FIG. 8c is a sectional view taken generally along line 8c-8c in FIG. 8a;

FIG. 8d is a sectional view taken generally along line 8d-8d in FIG. 8b;

FIG. 9a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a plastic sleeve covering at least a portion of the slider in the closed position;

FIG. 9b is a partial isometric view of the slider bag showing the plastic sleeve in the process of being removed from the bag;

FIG. 9c is a sectional view taken generally along line 9c-9c in FIG. 9a;

FIG. 9d is a sectional view taken generally along line 9d-9d in FIG. 9b;

FIG. 10a is a partial isometric view of a slider bag having a tamper-evident feature in the form of an extruded friction fit plastic sleeve located adjacent to the slider in the closed position;

FIG. 10b is a partial isometric view of the slider bag showing the plastic sleeve in the process of being removed from the bag;

FIG. 10c is a sectional view taken generally along line 10c-10c in FIG. 10a;

FIG. 10d is a sectional view taken generally along line 10d-10d in FIG. 10b;

5 FIG. 11a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a cardboard, paper, plastic, or foil strip stapled to the bag adjacent to the slider in the closed position;

FIG. 11b is a partial isometric view of the slider bag showing the stapled strip in the process of being removed from the bag;

10 FIG. 11c is a sectional view taken generally along line 11c-11c in FIG. 11a;

FIG. 11d is a sectional view taken generally along line 11d-11d in FIG. 11b;

FIG. 12a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a plastic tab located adjacent to the slider in the closed position, and including a pair of tab panels detachably connected to and extending upward from
15 respective bag body panels and attached to each other above the zipper;

FIG. 12b is a partial isometric view of the slider bag showing the plastic tab in the process of being removed from the bag;

FIG. 12c is a sectional view taken generally along line 12c-12c in FIG. 12a;

FIG. 12d is a sectional view taken generally along line 12d-12d in FIG. 12b;

20 FIG. 13a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a latch extending from a slider end stop and releasably engaged to the slider in the closed position;

FIG. 13b is a partial isometric view of the slider bag showing the latch in the process of being disengaged from the slider;

25 FIG. 13c is a sectional view taken generally along line 13c-13c in FIG. 13a;

FIG. 13d is a sectional view taken generally along line 13d-13d in FIG. 13b;

FIG. 14a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a latch extending from a slider end stop and engaged to the slider in the closed position;

30 FIG. 14b is a partial isometric view of the slider bag showing the latch in the process of being broken to release the slider from the end stop;

FIG. 14c is a sectional view taken generally along line 14c-14c in FIG. 14a;

FIG. 14d is a sectional view taken generally along line 14d-14d in FIG. 14b;

FIG. 15a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a latch extending from the slider in the closed position and engaged to the slider end stop;

5 FIG. 15b is a partial isometric view of the slider bag showing the latch in the process of being broken to release the slider from the end stop;

FIG. 15c is a sectional view taken generally along line 15c-15c in FIG. 15a;

FIG. 15d is a sectional view taken generally along line 15d-15d in FIG. 15b;

10 FIG. 16a is a partial isometric view of a slider bag having a tamper-evident feature in the form of a U-shaped element extending through slots in the slider in the closed position and dug into the zipper;

FIG. 16b is a partial isometric view of the slider bag showing the U-shaped element in the process of being disengaged from the zipper and removed from the slider;

15 FIG. 16c is a sectional view taken generally along line 16c-16c in FIG. 16a;

FIG. 16d is a sectional view taken generally along line 16d-16d in FIG. 16b;

FIG. 17a is an isometric view of a slider bag having a tamper-evident feature created by folding over the mouth portion of the bag and detachably connecting the folded-over mouth portion to the sides of the bag;

20 FIG. 17b is a partial isometric view of the slider bag showing one of the side seals attaching the folded-over mouth portion to the sides of the bag;

FIG. 17c is a partial isometric view of the slider bag after the side seals have been broken to allow the mouth portion to be unfolded;

25 FIG. 18 is an isometric view of a slider bag having a tamper-evident feature created by folding over the mouth portion of the bag and securing the folded-over mouth portion with a price tag pin and a side seal;

FIG. 19a is an isometric view of a slider bag having a tamper-evident feature created by folding over the mouth portion of the bag and detachably sealing the inner panel of the folded-over mouth portion to the adjacent bag panel;

30 FIG. 19b is a section view taken generally along line 19b-19b in FIG. 19a;

FIG. 20a is an isometric view of a slider bag having a tamper-evident feature created by folding over the mouth portion of the bag and securing the folded-over mouth portion with partially removable stickers; and

FIG. 20b is an isometric view of the slider bag in FIG. 20a after the stickers
5 have been partially removed to allow the mouth portion to be unfolded.

While the invention is susceptible to various modifications and alternative forms, a specific embodiment thereof has been shown by way of example in the drawings and will herein be described in detail. It should be understood, however, that
10 it is not intended to limit the invention to the particular forms disclosed, but on the contrary, the intention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to the drawings, FIG. 1 depicts a reclosable plastic slider bag 10
15 comprising first and second opposing body panels 12 and 14 fixedly connected to each other along a pair of sides 16 and 18 and a bottom 20 bridging the pair of sides 16 and 18. The bag is provided with a reclosable zipper 22 extending along a mouth portion formed opposite the closed bottom 20 of the plastic bag.

Referring to FIG. 3, the zipper 22 includes a male track and a female track.
20 The male track includes a male profile 24 and a first depending fin or flange 26 extending downward from the male profile 24. Likewise, the female track includes a female profile 28 and a second depending fin or flange 30 extending downward from the female profile 28. The first and second fins 26 and 30 are thermally fused to inner surfaces of the respective first and second body panels 12 and 14. Alternatively, the
25 zipper 22 may be extruded with the body panels 12 and 14 such that the first fin 26 is integrally formed with the first body panel 12 and the second fin 30 is integrally formed with the second body panel 14. To provide a hermetic seal for the contents of the bag, the first and second fins 26 and 30 may be joined to each other at their
30 lowermost ends along a line of weakness to effectively create a single tamper-evident continuous fin. If the fins are joined to each other, they must be separated from each other along the line of weakness in order to gain access to the contents of the bag. Further information concerning the joined fins may be obtained from U.S. application

Serial No. 08/950,535 filed October 15, 1997 and entitled "Reclosable Fastener Strip With Tamper Evident Feature," which is incorporated herein by reference in its entirety.

To assist in opening the plastic bag, a slider 32 is slidably mounted to the zipper 22 for movement between a closed position and an open position. In the closed position of the slider 32 shown in FIG. 1, the male and female profiles 24 and 28 are interlocked with each other. Movement of the slider 32 from the closed position in FIG. 1 toward the open position (see FIG. 2) disengages the male and female profiles 24 and 28 from each other and allows a user to gain access to the interior of the plastic bag. The zipper 22 is preferably free of graspable upper pull flanges extending upward from the profiles 24 and 28 in order to facilitate mounting and movement of the slider 32 along the zipper 22. Also, the absence of such upper pull flanges inhibits a user from opening and closing the zipper 22 without the use of the slider 32.

Opposite ends of the zipper 22 are provided with end termination clamps 34. Each end clamp 34 includes a strap member that wraps over the top of the zipper 22. To mount the strap to the zipper 22, one end of the strap is provided with a rivet-like member that is adapted to penetrate through the bag material and into a cooperating opening at the other end of the strap. The end clamps 34 perform the dual function of stops for the ends of the zipper 22 to prevent the slider 32 from going past the end of the zipper 22 and, in addition, they hold the male and female profiles 24 and 28 together to resist stresses applied to the profiles during normal use of the plastic bag. Further details concerning the construction and operation of the slider 32 and the end clamps 34 may be obtained from U.S. Patent No. 5,067,208 to Herrington, Jr. et al., which is incorporated herein by reference in its entirety. The end terminations 34 are merely illustrative and may take other forms known in the art, such as those disclosed in U.S. Patent Nos. 5,482,375; 5,448,807; 5,442,837; 5,405,478; 5,161,286; 5,131,121; and 5,088,971 and in U.S. application Serial No. 08/698,923 filed August 16, 1996 and entitled "End Posts for Plastic Zipper," all of which are incorporated herein by reference in their entireties.

To provide the plastic bag with tamper evidence, the bag includes a tamper-evident feature. In one set of embodiments depicted in FIGS. 4a-d through 16a-d, the tamper-evident feature initially maintains the slider 32 in the closed position (FIG. 1)

and allows the slider 32 to move away from the closed position toward the open position (see FIG. 2) in response to removing or breaking the tamper-evident feature. Prior to removing or breaking the tamper evident feature, it is difficult to gain access to the interior of the bag because, in the absence of graspable upper flanges, the zipper 22 is difficult to grasp and open by hand without the use of the slider 32. The tamper-evident feature may take a variety forms which are discussed below in connection with FIGS. 4a-d through 16a-d.

Referring to FIGS. 4a-d, there is shown a tamper-evident feature in the form of a partially removable adhesive label 40 adjacent to the narrow closing end 32a of the slider 32 when the slider 32 is in the closed position on the zipper 22. Opposing end sections 40a and 40b of the label 40 are permanently adhered to outer surfaces of the opposing bag body panels 12 and 14, while a middle portion 40c of the label 40 is detachably connected to these end sections 40a and 40b along respective perforation lines. One or both ends of each perforation line may be provided with a notch to help initiate tearing along the perforation line. The middle portion 40c is either not adhered to the bag or is peelably adhered to the bag. Prior to removal, the label 40 extends over the zipper 22 as shown in FIGS. 4a and 4c so as to obstruct movement of the slider 32 away from the closed position. To allow movement of the slider 32 and thereby gain access to the interior of the bag, a user grasps the portion 40c of the label 40 extending over the zipper 22 and detaches this portion 40c from the end sections 40a and 40b as shown in FIGS. 4b and 4d. The end sections 40a and 40b remaining on the bag provide evidence of tampering. In an alternative embodiment, the label 40 does not include the perforation lines, but rather is removed using a cutting tool such as a scissors or knife.

Referring to FIGS. 5a-d, there is shown a tamper-evident feature in the form of a flexible member, such as a conventional plastic price tag pin 50, extending through a hole 52 in the slider 32 and through the zipper 22 when the slider 32 is in the closed position on the zipper 22. The price tag pin 50 includes a pair of stops 54 and 56 at its opposing ends to keep the pin 50 in place. Since the price tag pin 50 is anchored to the zipper 22, the slider 32 cannot be moved away from the closed position until the price tag pin 50 is clipped off the bag as shown in FIGS. 5b and 5d. As shown in FIGS. 6a-d, the price tag pin 50 may alternatively be anchored to the zipper 22

adjacent to the closing end 32a of the slider 32 when the slider 32 is in the closed position on the zipper 22. The zipper 22 includes the profiles 24 and 28 and the fins 26 and 30 extending downward from the respective profiles 24 and 28. The price tag pin 50 may extend through a hole in either the profiles 24 and 28 (not shown) or the fins 26 and 30 as shown in FIG. 6c. The pin 50 may extend through both the fins and the opposing body panels (as shown) or just the fins. Prior to removal of the pin 50, the pin 50 blocks movement of the slider 32 away from the closed position.

Referring to FIGS. 7a-d, there is shown a tamper-evident feature in the form of a removable stepped retaining element 70 removably attached to the bag body panel 12 just below the zipper 22 at the closed position of the slider. The stepped element 70 may be attached to the bag body panel 12 by a peel seal or other weak adhesive that allows the stepped element 70 to be peeled or pried away as shown in FIGS. 7b and 7d. The stepped element 70 forms one or more steps 72 having respective sloped surfaces. The sloped surfaces of the respective steps 72 may be inclined such that each step 72 gradually increases in thickness in a direction approaching the end stop 34. To engage one of the steps 72, the slider 32 includes at least one inwardly extending shoulder 73 that is contoured to form a protrusion or bump 74. The protrusion 74 may be located anywhere along the shoulder 73. Further details concerning the contoured shoulder 73 may be obtained from U.S. application Serial No. 08/938,047 filed April 26, 1997, entitled "High-Strength Slider for a Reclosable Bag," and incorporated herein by reference in its entirety. When the slider 32 is in the closed position, the protrusion 74 on the slider shoulder 73 engages a raised edge 76 (FIG. 7a) on one of the steps 72.

To create the tamper-evident feature in FIGS. 7a-d, the stepped element 70 is preferably first adhered to the bag body panel 12. Subsequently, the slider 32 may be engaged to the stepped element 70 using a couple techniques. In one technique, if the slider 32 is of the wing-lock type disclosed in U.S. Patent No. 5,067,208, the slider 32 may be installed on the zipper 22 at a location immediately above the stepped element 70. The wing-lock slider 32 includes a pair of hinged wings 78 and 79 that, prior to installing the slider 32 on the zipper 22, are spread away from each other in an open position (not shown). The wing 78 forms the shoulder 73 having the protrusion 74. The slider 32 is initially mounted to the zipper 22 above the stepped element with the

wings 78 and 79 in the open or spread position, and then the wings 78 and 79 are rotated downward and latched in a closed position depicted in FIGS. 7a-d. As the wings 78 and 79 are latched in the closed position, the protrusion 74 engages the edge 76 of one of the steps 72. In another technique, the slider 32 is installed on the zipper 22 at a location away from the stepped element 70. The slider 32 is then moved along the zipper 22 to the closed position. When approaching the closed position, the slider shoulder 73 is forced over the stepped element 70 until the protrusion 74 engages the edge 76 of one of the steps 72.

To remove the stepped element 70 and thereby allow movement of the slider 32 away from the closed position, a user grasps a tab 71 of the stepped element 70 and peels or pries the stepped element 70 away from the bag body panel 12 as shown in FIGS. 7b and 7d.

Referring to FIGS. 7e-h, in an alternative embodiment a breakaway stepped element 70' is integrally formed with the end stop 34 and is detachably connected to the end stop 34 along a weakened area of connection 75 (FIG. 7e). To remove the stepped element 70', the slider 32 is forced away from the closed position as shown in FIG. 7f to break the weakened connection 75. The detached stepped element 70' is then removed from beneath the slider 32. To facilitate removal of the stepped element 70', a pull tab akin to the tab 71 in FIGS. 7a-d may be provided. Instead of detaching the stepped element 70' from the end stop 34 by forcibly moving the slider 32 away from the end stop 34, the stepped element 70' may alternatively be provided with a pull tab that is grasped and pulled by a user to first rupture the weakened connection 75 and then remove the detached stepped element 70' from beneath the slider 32.

Referring to FIGS. 8a-d, there is shown a tamper-evident feature in the form of removable plastic shrink wrap 80 encapsulating the slider 32 when the slider 32 is in the closed position. The shrink wrap 80 is adhered or thermally fused to the bag body panels 12 and 14. The shrink wrap 80 may additionally encapsulate the end stop 34, in which case the shrink wrap 80 may only need to be attached to itself and not to the body panels in order to be held in place. Alternatively, the shrink wrap may be shrunk over the zipper 22 in front of the slider 32. To allow the slider 32 to be moved away from the closed position, the shrink wrap 80 is torn or peeled away from the bag as shown in FIGS. 8b and 8d. The shrink wrap 80 may be notched or perforated to

facilitate its removal. Such perforations could be located along the top or sides of the shrink wrap 80 depending upon the manner in which it is desired that the shrink wrap 80 be torn away. It is contemplated that a portion of the shrink wrap 80 could remain attached to the bag body panels 12 and 14 for tamper evidence after most of the shrink wrap 80 is torn away, so long as the remaining portion does not interfere with the movement of the slider 32.

Referring to FIGS. 9a-d, there is shown a tamper-evident feature in the form of a rigid or flexible plastic sleeve 90 partially covering the slider 32 when the slider 32 is in the closed position. Alternatively, the sleeve 90 may be increased in length to cover the entire slider 32. The sleeve 90 is either adhered or thermally fused to one or both of the bag body panels 12 and 14 as shown in FIGS. 9a and 9c or attached to the end stop 34 (not shown). To allow the slider 32 to be moved away from the closed position, the plastic sleeve 90 is torn or peeled away from the bag as shown in FIGS. 9b and 9d.

Referring to FIGS. 10a-d, in an alternative embodiment a plastic sleeve 100 is mounted over the zipper 22 adjacent to the closing end 32a of the slider 32 when the slider is in the closed position. The sleeve 100 may be adhered or thermally fused to the bag body panels 12 and 14 and, additionally or alternatively, may be releasably connected to the zipper 22 by a friction fit. Also, the sleeve 100 may extend along only a short portion of the length of the zipper 22 as shown, or may extend along substantially the entire length of the zipper 22 less the region of the zipper 22 occupied by the slider 32. To achieve a strong friction fit between the sleeve 100 and the zipper 22, the sleeve 100 is preferably extruded to have an inner profile conforming to an outer profile of the zipper 22 as shown in FIG. 10c. When the sleeve 100 is mounted to the zipper 22, the sleeve 100 obstructs movement of the slider 32 away from the closed position. To allow the slider 32 to be moved away from the closed position, the sleeve 100 is pried off the zipper 22 either by pulling the entire sleeve 100 upward off the zipper 22 (not shown) or, if the sleeve 100 is sufficiently flexible, by releasing and lifting one side of the sleeve 100 as shown in FIGS. 10b and 10d.

Referring to FIGS. 11a-d, there is shown a tamper-evident feature in the form of a cardboard, paper, plastic, or foil strip 110 wrapped over the zipper 22 at a location

adjacent to the closing end 32a of the slider 32 when the slider 32 is in the closed position. The strip 110 is stapled to the bag body panels 12 and 14. To allow the slider 32 to be moved away from its closed position, the staple is removed from the strip 110 which is, in turn, removed from the bag.

5 Referring to FIGS. 12a-d, there is shown a tamper-evident feature in the form of a plastic tab 120 located adjacent to the closing end 32a of the slider 32 when the slider is in the closed position. The plastic tab 120 includes a pair of tab panels 120a and 120b (FIG. 12c) integrally formed with the respective bag body panels 12 and 14 and detachable therefrom along lines of weakness 122 (FIG. 12a). The lines of
10 weakness may be perforations, scores, thinned areas, or the like. The tab panels 120a and 120b extend upwardly above the zipper 22 and are adhered or thermally fused to each other above the zipper 22. To allow the slider 32 to be moved away from its closed position, the tab panels 120a and 120b are grasped and pulled in a generally upward direction until they are broken away from the bag body panels 12 and 14
15 along the lines of weakness 122 as shown in FIGS. 12b and 12d. It is contemplated that a single tab panel maybe used in place of the pair of tab panels 120a and 120b.

Referring to FIGS. 13a-d, there is shown a tamper-evident feature in the form of a latch 130 extending from the end stop 34 and releasably engaged to the slider 32 when the slider 32 is in the closed position. The illustrated latch 130 is connected to
20 the end stop 34 along a one-time breakable hinge that biases the latch 130 toward the position depicted in FIG. 13a. The latch 130 may extend along the side of the slider 32 as shown or, alternatively, may extend along the top wall of the slider 32. As shown in FIG. 13a, the latch 130 is shaped to extend about the exterior of the slider 32 and forms a distal hook 132 that engages the closing end 32a of the slider 32.
25 Alternatively, the slider 32 may be modified to include a protruding tab, and the latch 130 may be adapted to engage the protruding tab. To allow the slider 32 to be moved away from its closed position, the latch 130 is pivoted outward away from the slider 32 until the hook 132 disengages from the slider 32 as shown in FIGS. 13b and 13d. The latch 130 is then torn away from the end stop 34 and discarded.

30 Referring to FIGS. 14a-d, there is shown a tamper-evident feature in the form of an arrow-shaped latch 140 extending from the slider end stop 34 and engaged to the slider 32 when the slider 32 is in the closed position. The latch 140 is integrally

formed with the end stop 34, and the slider 32 is initially injection molded with an elongated cavity 142 having a shape generally corresponding to the shape of the latch 140. The transverse dimension of the cavity is slightly greater than the transverse dimension of the latch 140. To "activate" the tamper-evident feature, the slider 32 is moved to the closed position such that the latch 140 is inserted into the cavity 142 and the barb-like head 144 of the latch 140 snappingly engages a shoulder 146 deep within the cavity 142. The latch head 144 is sufficiently flexible to allow the latch 140 to be inserted in the cavity 142 and, yet, its barb-like shape prevents the latch 140 from subsequently being extracted from the cavity 142. The installed latch 140 is depicted in FIGS. 14a and 14c. To allow the slider 32 to be moved away from its closed position, the slider 32 is simply grasped and moved away from the closed position with sufficient force to break the latch 140 away from the end stop 34 as shown in FIGS. 14b and 14d. The latch 140 remains captured within the cavity 142 of the slider 32.

As shown in FIGS. 15a-d, an arrow-shaped latch 150 may alternatively extend from the slider 32 and be engaged to the end stop 34. The latch 150 is inserted into a cavity 152 within the end stop 34 and snappingly engaged to a shoulder 154 within the cavity 152. In response to forcing the slider 32 away from its closed position, the latch 150 is broken away from the slider 32 and remains captured within the cavity 152 as shown in FIGS. 15b and 15d.

Referring to FIGS. 16a-d, there is shown a tamper-evident feature in the form of a U-shaped rigid or semi-rigid retaining element 160 extending through slots 162 in the slider 32 and dug into the zipper 22 (see FIG. 16c) when the slider 32 is in the closed position. The U-shaped element 160 may be composed of metal or plastic. The slider 32 includes a transverse member 163 and a pair of side walls 164 and 165 extending downward from opposing longitudinal sides of the transverse member 163. The transverse member 163 rides along the upper portion of the zipper 22. The side wall 164 includes a leg 166 and a hinged wing 167. After the slider 32 is installed on the zipper 22, the wing 167 encompasses and is latched to the leg 166. The side wall 165 includes a leg and a hinged wing akin to the respective leg 166 and wing 167 of the side wall 164. The slots 162 are formed by a small gap separating the wing 167 from the leg 166. Further details concerning the construction of the slider 32 may

be obtained from U.S. application Serial No. 08/938,047 filed April 26, 1997, entitled "High-Strength Slider for a Reclosable Bag," and already incorporated herein by reference in its entirety.

5 An advantage of the tamper-evident feature in FIGS. 16a-d is that a slider bag utilizing the slider 32 constructed as described above is already suitable for receiving the U-shaped element 160. No special features need to be added to the slider 32. Therefore, such a slider bag may be retrofitted with the U-shaped element 160 to provide the bag with a degree of tamper evidence. To allow the slider 32 to be moved away from the closed position, the U-shaped element 160 is disengaged from the zipper 22 and removed from the slider 32. To facilitate such removal of the U-shaped
10 element, a prying tool such as a screwdriver may be inserted between the slider leg 166 and the U-shaped element 160. In an alternative embodiment, the U-shaped element 160 is replaced with a rigid element that passes through only a single slot or hole in the slider 32 and digs into the zipper 22. This rigid element is preferably
15 provided with some sort of handle that can be manipulated by hand or with a tool to facilitate removal of the rigid element from the slider 32.

In another set of embodiments illustrated in FIGS. 17a-c through FIGS. 20a-b, the tamper-evident feature initially maintains a mouth portion of the plastic bag in a folded position and allows the mouth portion to be unfolded in response to removing
20 or breaking the tamper-evident feature. The tamper-evident feature can be employed with both slider and sliderless bags.

Referring to FIGS. 17a-c, there is shown a tamper-evident feature created by folding over the mouth portion 170 of the bag and detachably sealing the folded-over mouth portion 170 to the sides 16 and 18 of the bag along side spot seals 172 and 174.
25 With the bag in the folded position, as shown in FIGS. 17a and 17b, access to the interior of the bag is restricted because even if the slider 32 is moved from the closed position to the open position, one would have difficulty getting past the fold 176 after entering the bag. In addition to providing tamper evidence, the folded-over mouth portion 170 provides a convenient handle for carrying the bag especially when the
30 seals for attaching the folded-over mouth portion 170 are located along the sides 16 and 18. To gain access to the contents of the bag, the side seals 172 and 174 are ruptured to allow the mouth portion 170 to be unfolded as shown in FIG. 17c.

As shown in FIGS. 18, 19a-b, and 20a-b, the folded-over mouth portion 170 may alternatively be secured in the folded position by other means. For example, in FIG. 18, the folded-over mouth portion 170 is held in the folded position by the combination of a spot seal 174 along the side 18 and a flexible member, such as a price tag pin 180, passing through both the zipper 22 and the adjacent unfolded bag portion near the side 16. The price tag pin 180 performs the dual function of maintaining the mouth portion 170 in the folded position and preventing the slider 32 from being moved away from the closed position until the pin 180 is removed from the bag. The embodiment in FIG. 18 may be modified to eliminate the spot seal 174 and provide either a single price tag pin approximately midway between the sides 16 and 18 or a pair of price tag pins near the respective sides 16 and 18. Any price tag pin near the side 16 is preferably disposed adjacent to or through the slider 32 along the zipper 22 to prevent the slider 32 from being moved away from the closed position until the pin is removed from the bag.

In FIGS. 19a-b, the folded-over mouth portion 170 is secured in the folded position by one or more spot seals 190 and 192 detachably sealing the bag panel 12 to itself. The spot seals may, for example, be peelable seals or "dirty" seals. The portion of the bag panel 12 on the mouth portion 170 is adhered to the adjacent unfolded portion of the bag panel 12. The spot seals 190 and 192 may, if desired, be strategically positioned to create a handle for carrying the bag.

In FIGS. 20a-b, the folded-over mouth portion 170 is secured in the folded position by one or more partially removable stickers (adhesive strip) or pressure-sensitive labels 200 that attach the mouth portion 170 to the adjacent unfolded portion of the bag panel 12. One of the stickers 200 may be positioned adjacent to or over the slider 32 along the zipper 22 to prevent the slider 32 from being moved away from the closed position until the sticker is removed from the bag. A middle portion of each sticker 200 is torn away to allow the mouth portion 170 to be unfolded, while end portions of each sticker 200 remain permanently attached to the bag to provide evidence of tampering.

Each tamper-evident feature described above makes it difficult to gain access to the interior of the bag prior to removing or breaking the tamper-evident feature. In the absence of graspable upper flanges, the zipper 22 is difficult to grasp and open by

hand without the use of the slider 32. Therefore, with respect to those tamper-evident features that prevent movement of the slider 32 away from the closed position, such tamper-evident features effectively inhibit tampering with the contents of the bag to a degree that is especially useful for non-food and some food applications, where tamper-proof packaging is not required but tamper-resistant packaging is nonetheless desirable. For example, the tamper-evident features in FIGS. 4a-d, 8a-d, 9a-d, 10a-d, 11a-d, and 12a-d are advantageous in that tamper resistance is accomplished by using a removable cardboard, paper, plastic, or foil member covering or adjacent to the slider in the closed position and adhered, stapled, friction fit, or connected in some other way to the bag to hold the member in place. If the member is composed of plastic, the plastic may be a polymer or copolymer comprised of polyethylene-based polymers, polystyrene, polypropylene, nylon, polycarbonate, or other similar materials. The polyethylene-based polymers may include low density polyethylene, linear low density polyethylene, metallocene, ethylene vinyl acetate, or other similar materials. The shrink wrap 80 in FIGS. 8a-d is preferably composed of conventional low density polyethylene. The plastic tab 120 in FIGS. 12a-d is formed from the same material as the bag body panels 12 and 14 because the detachable tab panels 120a and 120b are integrally formed with the respective bag body panels 12 and 14.

Further, the tamper-evident features in FIGS. 5a-d and 6a-d are advantageous in that tamper resistance is accomplished by using a conventional price tag pin anchored to at least the zipper 22 (FIGS. 5a-d and 6a-d) and optionally anchored to the slider 32 as well (FIGS. 5a-d) so as to obstruct movement of the slider 32 away from its closed position. The tamper-evident features in FIGS. 13a-d, 14a-d, and 15a-d are advantageous in that tamper resistance is accomplished by using a movable (FIGS. 13a-d) or breakable (FIGS. 14a-d and 15a-d) latch releasably coupling the slider 32 to the end stop 34. The stepped element in FIGS. 7a-h is likewise effective at providing resistance to tampering with the contents of the slider bag.

Unlike the tamper-evident features in FIGS. 4a-d through 16a-d, the tamper-evident features in FIGS. 17a-c, 18, 19a-b, and 20a-b do not rely upon preventing movement of the slider 32 away from its closed position. Rather, the tamper-evident features in FIGS. 17a-c, 18, 19a-b, and 20a-b rely upon securing the bag mouth in a folded position and would still be effective in the absence of the slider 32 and the

zipper 22. Therefore, unlike the other tamper-evident features, the tamper-evident features in FIGS. 17a-c, 18, 19a-b, and 20a-b may be applied to virtually any type of bag. If, however, a slider bag is employed, it is contemplated that the tamper-evident features of FIGS. 4a-d through 16a-d can be combined with the tamper-evident features in FIGS. 17a-c, 18, 19a-b, and 20a-b so as to both secure the bag mouth in a folded position and prevent movement of the slider away from its closed position until the appropriate tamper-evident feature is broken or removed. Examples of bags combining multiple tamper-evident features is illustrated in FIGS. 18 and 20a-b.

While the present invention has been described with reference to one or more particular embodiments, those skilled in the art will recognize that many changes may be made thereto without departing from the spirit and scope of the present invention. Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims.

WHAT IS CLAIMED IS:

1. A tamper-evident slider bag, comprising:

first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;

5 a reclosable zipper extending along a mouth formed opposite said bottom;

a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position; and

10 a stationary tamper-evident member initially extending over said zipper and coupled to said opposing body panels, said tamper-evident member being initially positioned relative to said slider so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said tamper-evident member from the bag.

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2. The bag of claim 1, wherein said tamper-evident member includes an adhesive label adhered to outer surfaces of said opposing body panels.

20 3. The bag of claim 2, wherein said adhesive label is adjacent to said slider along said zipper.

4. The bag of claim 1, wherein said tamper-evident member includes a flexible strip stapled to said opposing body panels.

25 5. The bag of claim 4, wherein said flexible strip is comprised of a material selected from a group consisting of cardboard, paper, plastic, and foil.

6. The bag of claim 4, wherein said tamper-evident member is adjacent to said slider along said zipper.

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7. The bag of claim 1, wherein said tamper-evident member includes a plastic sleeve adhered to outer surfaces of said opposing body panels.

8. The bag of claim 7, wherein said plastic sleeve covers at least a portion of said slider.

5 9. The bag of claim 1, wherein said tamper-evident member includes a profiled plastic sleeve connected by friction fit to said zipper.

10 10. The bag of claim 9, wherein said profiled plastic sleeve has an inner profile substantially complementary to an outer profile of said zipper.

11. The bag of claim 9, wherein said profiled plastic sleeve is adjacent to said slider along said zipper.

15 12. The bag of claim 1, wherein said tamper-evident member includes shrink wrap encapsulating said slider when said slider is in said closed position.

13. The bag of claim 12, wherein said shrink wrap is adhered to said opposing body panels.

20 14. The bag of claim 1, wherein said tamper-evident member includes a plastic tab including first and second tab panels integrally formed with said respective first and second body panels, said first and second tab panels extending upward from said respective first and second body panels and being connected to each other above said zipper.

25 15. The bag of claim 14, wherein said plastic tab is initially disposed adjacent to said slider when said slider is in said closed position.

30 16. The bag of claim 14, wherein said first and second tabs are detachably connected to said respective first and second body panels along respective lines of weakness.

17. The bag of claim 1, wherein said zipper includes a first track with a first profile and a second track with a second profile, said first and second profiles being releasably engageable to each other, and wherein said first and second tracks are free of graspable upper pull flanges extending upwardly from said respective first and second profiles.

18. A tamper-evident slider bag, comprising:
first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;
a reclosable zipper extending along a mouth formed opposite said bottom, said zipper including a first track with a first profile and a second track with a second profile, said first and second profiles being releasably engageable to each other;
a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position; and
a stationary tamper-evident member including a pin initially passing through said zipper at a location proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said pin from the bag.

19. The bag of claim 18, wherein said pin is a price tag pin.

20. The bag of claim 18, wherein said pin is flexible and includes an elongated central portion and a pair of stops at opposing ends to keep said pin on said zipper.

21. The bag of claim 18, wherein said first and second tracks are free of graspable upper pull flanges extending upwardly from said respective first and second profiles.

22. The bag of claim 18, wherein said pin passes through said slider to anchor said slider to said zipper.

23. The bag of claim 18, wherein said pin passes through said zipper adjacent to said slider.

24. The bag of claim 18, wherein said first track includes a first fin extending downward from said first profile and wherein said second track includes a second fin extending downward from said second profile, said pin passing through said first and second fins.

25. The bag of claim 18, wherein said pin passes through said first and second profiles.

26. A tamper-evident slider bag, comprising:
first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;
a reclosable zipper extending along a mouth formed opposite said bottom;
a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position, said slider including a shoulder riding along said first body panel as said slider is moved between said closed and open positions; and
a stationary tamper-evident stepped member disposed adjacent to said first body panel and including at least one step, said shoulder being engaged to said step when said slider is initially in said closed position so as to initially prevent movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said stepped member from the bag.

27. The bag of claim 26, wherein said stepped member is detachably adhered to said first body panel.

28. The bag of claim 26, further including an end termination mounted to said zipper and disposed adjacent to said closed position of said slider, said end termination stopping said slider at said closed position when said slider is moved from said open position to said closed position, and wherein said stepped member is detachably connected to said end termination.

29. The bag of claim 28, wherein said stepped member is integrally formed with said end termination.

30. The bag of claim 26, wherein said stepped member includes a plurality of steps having respective sloped surfaces, said sloped surfaces being inclined such that each of said plurality of steps gradually increases in thickness in a direction extending away from said open position of said slider.

31. The bag of claim 26, wherein said shoulder includes a protrusion, said protrusion from said shoulder being engaged to said step when said slider is initially in said closed position so as initially prevent movement of said slider away from said closed position.

32. A tamper-evident slider bag, comprising:
first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom ridging said pair of sides;

a reclosable zipper extending along a mouth formed opposite said bottom;
a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position;

an end termination mounted to said zipper and disposed adjacent to said closed position of said slider, said end termination stopping said slider at said closed position when said slider is moved from said open position to said closed position; and

5 a latch initially integrally connected to one of said end termination and said slider and latched to the other of said end termination and said slider so as to initially retain said slider in said closed position, said slider being allowed to move away from said closed position in response to breaking said latch away from said one of said end termination and said slider.

10 33. The bag of claim 32, wherein said latch is retained with said other of said end termination and said slider after said latch is broken away from said one of said end termination and said slider.

34. The bag of claim 32, wherein said latch is initially integrally connected to said end termination and latched to said slider.

15 35. The bag of claim 32, wherein said latch is initially integrally connected to said slider and latched to said end termination.

20 36. The bag of claim 32, wherein said latch includes a shaft and an enlarged head at one end of said shaft, and wherein said one of said end termination and said slider includes a cavity for receiving said latch.

25 37. The bag of claim 36, wherein said cavity includes first and second sections, said second section being larger in size than said first section, said shaft being located in said first section, said enlarged head being located in said second section.

25 38. A tamper-evident slider bag, comprising:
first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;
a reclosable zipper extending along a mouth formed opposite said bottom;
30 a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said

closed position, said zipper being opened in response to movement of said slider to said open position, said slider from being at least one slot; and

a retaining member extending through said slot and digging into said zipper when said slider is initially in said closed position so as to initially maintain said slider in said closed position, said slider being allowed to move away from said closed position in response to removal of said retaining member from said slot.

39. The bag of claim 38, wherein said at least one slot includes a pair of slots spaced away from each other and wherein said retaining member is U-shaped, said U-shaped retaining member including a pair of spaced legs extending through said respective slots and digging into said zipper when said slider is initially in said closed position.

40. The bag of claim 39, wherein said slider includes a transverse member and a pair of side walls extending downward from opposite sides of said transverse member, said transverse member riding along an upper portion of said zipper as said slider is moved between said open and closed positions, each of said side walls including a leg and a wing encompassing said leg, portions of said wing being separated from said leg to form said pair of slots.

41. A tamper-evident plastic bag, comprising:

first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides; and

a reclosable zipper extending along a mouth portion formed opposite said bottom;

said mouth portion being initially folded relative to a remainder of the bag and detachably connected to said bag remainder by a breakable connection so as to temporarily secure said mouth portion in a folded position alongside said bag remainder and thereby inhibit access to an interior of said bag remainder via said reclosable zipper, access to said interior of said bag remainder via said reclosable zipper being allowed in response to breaking said breakable connection.

42. The bag of claim 41, wherein said breakable connection includes a pair of seal areas located along said respective sides.

43. The bag of claim 42, wherein said pair of seal areas are located in close proximity to said zipper.

44. The bag of claim 42, wherein sections of said mouth portion approximately midway between said sides are free of said breakable connection such that said sections provide a carrying handle when said mouth portion is secured in said folded position.

45. The bag of claim 41, further including a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position.

46. The bag of claim 41, wherein said breakable connection includes a seal area attaching said mouth portion to an adjacent one of said body panels.

47. The bag of claim 41, wherein said breakable connection includes one or more stickers extending between said folded mouth portion and said remainder of said bag.

48. The bag of claim 41, wherein said breakable connection includes a pin passing through said folded mouth portion and said bag remainder, access to said interior of said bag remainder via said reclosable zipper being allowed in response to removing said pin.

49. The bag of claim 48, further including a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position, and wherein said pin

initially passes through said zipper at a location proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said pin from the bag.

5

AMENDED CLAIMS

[received by the International Bureau on 14 April 2000 (14.04.00);
original claim 45 has been cancelled and claims 1 32.38.41 and 49
have been amended (4 pages)]

1. A tamper-evident slider bag, comprising:
first and second opposing body panels fixedly connected to each other along a
pair of sides and a bottom bridging said pair of sides;
5 a reclosable zipper extending along a mouth formed opposite said bottom and
including a rib profile and a groove profile, said rib profile and said groove profile
adapted to interlock with each other;
a slider slidably mounted to said zipper for movement between a closed position
and an open position, said rib and groove profiles being interlocked while said slider is in
10 said closed position, said said rib and groove profiles being progressively disengaged in
response to movement of said slider to said open position; and
a stationary tamper-evident member initially extending over said zipper and
sealed to said opposing body panels below said zipper, said tamper-evident member
having a length substantially less than a length of said zipper, said tamper-evident
15 member being initially positioned proximate to said slider when said slider is in said
closed position so as to initially obstruct the movement of said slider away from said
closed position, said slider being allowed to move away from said closed position in
response to removal of said tamper-evident member from the bag.
2. The bag of claim 1, wherein said tamper-evident member includes an
20 adhesive label adhered to outer surfaces of said opposing body panels.
3. The bag of claim 2, wherein said adhesive label is adjacent to said slider
along said zipper.
4. The bag of claim 1, wherein said tamper-evident member includes a
flexible strip stapled to said opposing body panels.
- 25 5. The bag of claim 4, wherein said flexible strip is comprised of a material
selected from a group consisting of cardboard, paper, plastic, and foil.
6. The bag of claim 4, wherein said tamper-evident member is adjacent to
said slider along said zipper.
7. The bag of claim 1, wherein said tamper-evident member includes a
30 plastic sleeve adhered to outer surfaces of said opposing body panels.

a latch initially integrally connected to one of said end termination and said slider and latched to but not integral with the other of said end termination and said slider so as to initially retain said slider in said closed position, said slider being allowed to move away from said closed position in response to breaking said latch away from said one of
5 said end termination and said slider.

33. The bag of claim 32, wherein said latch is retained with said other of said end termination and said slider after said latch is broken away from said one of said end termination and said slider.

34. The bag of claim 32, wherein said latch is initially integrally connected to
10 said end termination and latched to said slider.

35. The bag of claim 32, wherein said latch is initially integrally connected to said slider and latched to said end termination.

36. The bag of claim 32, wherein said latch includes a shaft and an enlarged head at one end of said shaft, and wherein said one of said end termination and said
15 slider includes a cavity for receiving said latch.

37. The bag of claim 36, wherein said cavity includes first and second sections, said second section being larger in size than said first section, said shaft being located in said first section, said enlarged head being located in said second section.

38. A tamper-evident slider bag, comprising:
20 first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;

a reclosable zipper extending along a mouth portion formed opposite said bottom, said zipper including a pair of interlocking flexible plastic tracks;
a slider slidably mounted to said zipper for movement between a closed position and an
25 open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position, said slider forming at least one slot; and

a retaining member extending through said slot and digging into the plastic material of at least one of said flexible tracks when said slider is initially in said closed
30 position so as to initially maintain said slider in said closed position, said slider being allowed to move away from said closed position in response to removal of said retaining member from said slot.

39. The bag of claim 38, wherein said at least one slot includes a pair of slots spaced away from each other and wherein said retaining member is U-shaped, said U-shaped retaining member including a pair of spaced legs extending through said respective slots and digging into said zipper when said slider is initially in said closed position.

40. The bag of claim 39, wherein said slider includes a transverse member and a pair of side walls extending downward from opposite sides of said transverse member, said transverse member riding along an upper portion of said zipper as said slider is moved between said open and closed positions, each of said side walls including a leg and a wing encompassing said leg, portions of said wing being separated from said leg to form said pair of slots.

41. A tamper-evident plastic bag, comprising:
first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;
a reclosable zipper extending along a mouth portion formed opposite said bottom; and
a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position;
said mouth portion being initially folded relative to a remainder of the bag and
detachably connected to said bag remainder by a breakable connection so as to temporarily secure said mouth portion in a folded position alongside said bag remainder and thereby inhibit access to an interior of said bag remainder via said reclosable zipper, at least a portion of said breakable connection being initially positioned proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position and access to said interior of said bag remainder via said reclosable zipper being allowed in response to breaking said breakable connection.

42. The bag of claim 41, wherein said breakable connection includes a pair of seal areas located along said respective sides.

43. The bag of claim 42, wherein said pair of seal areas are located in close proximity to said zipper.

44. The bag of claim 42, wherein sections of said mouth portion approximately midway between said sides are free of said breakable connection such that said sections provide a carrying handle when said mouth portion is secured in said folded position.

5 45. The bag of claim 41, further including a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position.

10 46. The bag of claim 41, wherein said breakable connection includes a seal area attaching said mouth portion to an adjacent one of said body panels.

47. The bag of claim 41, wherein said breakable connection includes one or more stickers extending between said folded mouth portion and said remainder of said bag.

15 48. The bag of claim 41, wherein said breakable connection includes a pin passing passing through said folded mouth portion and said bag remainder, access to said interior of said bag remainder via said reclosable zipper being allowed in response to removing said pin.

20 49. The bag of claim 48, wherein said pin initially passes through said zipper at a location proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said pin from the bag.

Statement Under Article 19

Dear Sir:

In response to the International Search Report dated February 8, 2000, please amend the claims according to Article 19(1) and Rule 46.1

1. Applicant herewith submits replacement sheet(s) number(ed) 20,25-27 to replace sheet(s) number(ed) 20, 25-28 originally filed for this application.
2. In respect of each claim appearing in the international application based on the replacement sheets submitted herewith, and in accordance with PCT Section 205, the following claim(s) are:

- | | | | |
|-------|------------|---|-------------|
| (i) | unchanged: | claim(s) <u>2-31, 33-37, 39-40, 42-48</u> | |
| (ii) | cancelled: | claim(s) <u>45</u> | |
| (iii) | new: | claim(s) _____ | |
| (iv) | amended: | claim(s) <u>1, 32, 38, 41, 49</u> | as follows: |

Underlined text adds material, brackets delete material

1. (Once Amended) A tamper-evident slider bag, comprising:
 first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;
 a reclosable zipper extending along a mouth formed opposite said bottom and including a rib profile and a groove profile, said rib profile and said groove profile adapted to interlock with each other;

a slider slidably mounted to said zipper for movement between a closed position and an open position, [said zipper being closed] said rib and groove profiles being interlocked while said slider is in said closed position, said [zipper being opened] said rib and groove profiles being progressively disengaged in response to movement of said slider to said open position; and

a stationary tamper-evident member initially extending over said zipper and [coupled] sealed to said opposing body panels below said zipper, said tamper-evident member having a length substantially less than a length of said zipper, said tamper-evident member being initially positioned [relative] proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said tamper-evident member from the bag.

32. (Once Amended) A tamper-evident slider bag, comprising:

first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;

a reclosable zipper extending along a mouth formed opposite said bottom;

a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position;

an end termination mounted to said zipper and disposed adjacent to said closed position of said slider, said end termination stopping said slider at said closed position when said slider is moved from said open position to said closed position; and

a latch initially integrally connected to one of said end termination and said slider and latched to but not integral with the other of said end termination and said slider so as to initially retain said slider in said closed position, said slider being allowed to move away from said closed position in response to breaking said latch away from said one of said end termination and said slider.

38. (Once Amended) A tamper-evident slider bag, comprising:

first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides;

a reclosable zipper extending along a mouth portion formed opposite said bottom, said zipper including a pair of interlocking flexible plastic tracks;

a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position, said slider [from being] forming at least one slot; and

a retaining member extending through said slot and digging into [said zipper] the plastic material of at least one of said flexible tracks when said slider is initially in said closed position so as to initially maintain said slider in said closed position, said slider being allowed to move away from said closed position in response to removal of said retaining member from said slot.

41. (Once Amended) A tamper-evident slider bag, comprising:

first and second opposing body panels fixedly connected to each other along a pair of sides and a bottom bridging said pair of sides; [and]

a reclosable zipper extending along a mouth portion formed opposite said bottom; and

a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being opened in response to movement of said slider to said open position;

said mouth portion being initially folded relative to a remainder of the bag and detachably connected to said bag remainder by a breakable connection so as to temporarily secure said mouth portion in a folded position alongside said bag remainder and thereby inhibit access to an interior of said bag remainder via said reclosable zipper, at least a portion of said breakable connection being initially positioned proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position and access to said interior of said bag remainder via said reclosable zipper being allowed in response to breaking said breakable connection.

49. (Once Amended) The bag of claim 48, [further including a slider slidably mounted to said zipper for movement between a closed position and an open position, said zipper being closed while said slider is in said closed position, said zipper being

opened in response to movement of said slider to said open position, and] wherein said pin initially passes through said zipper at a location proximate to said slider when said slider is in said closed position so as to initially obstruct the movement of said slider away from said closed position, said slider being allowed to move away from said closed position in response to removal of said pin from the bag.

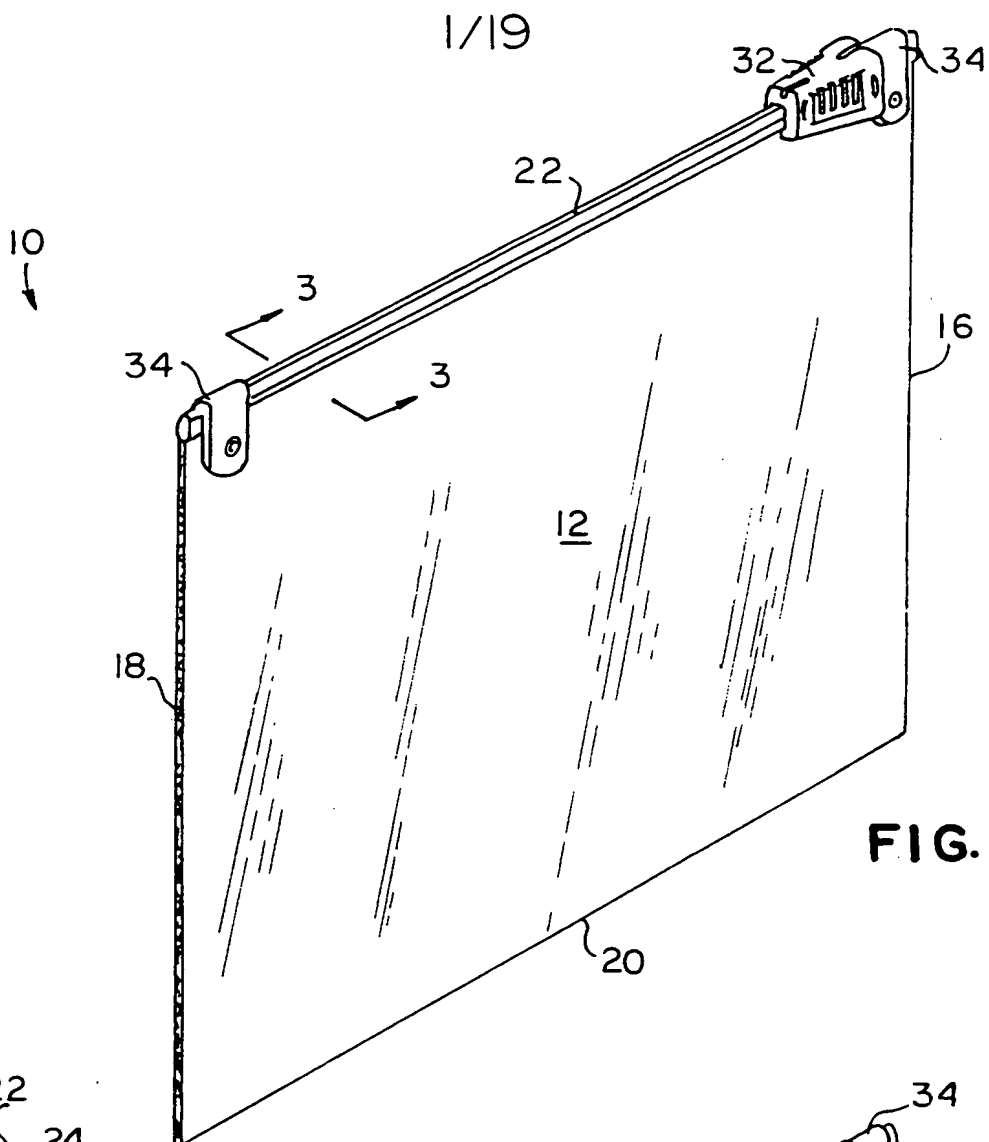


FIG. 1

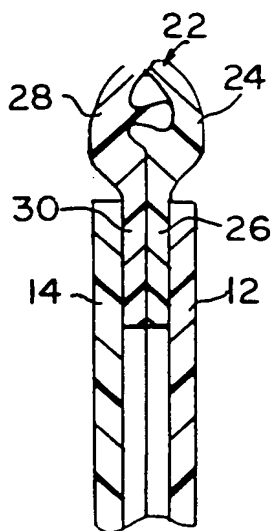


FIG. 3

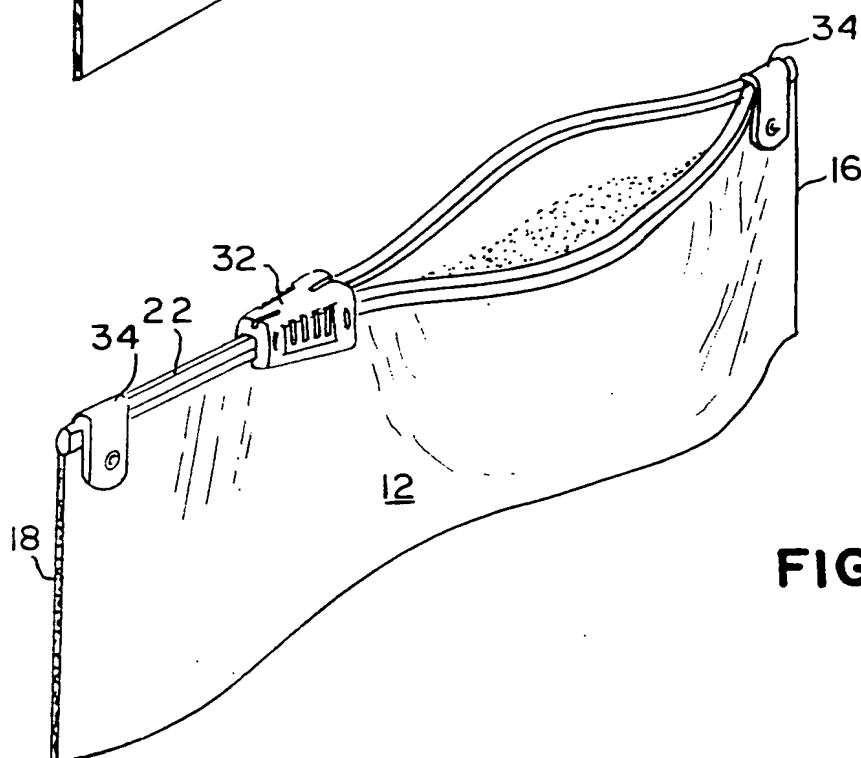


FIG. 2

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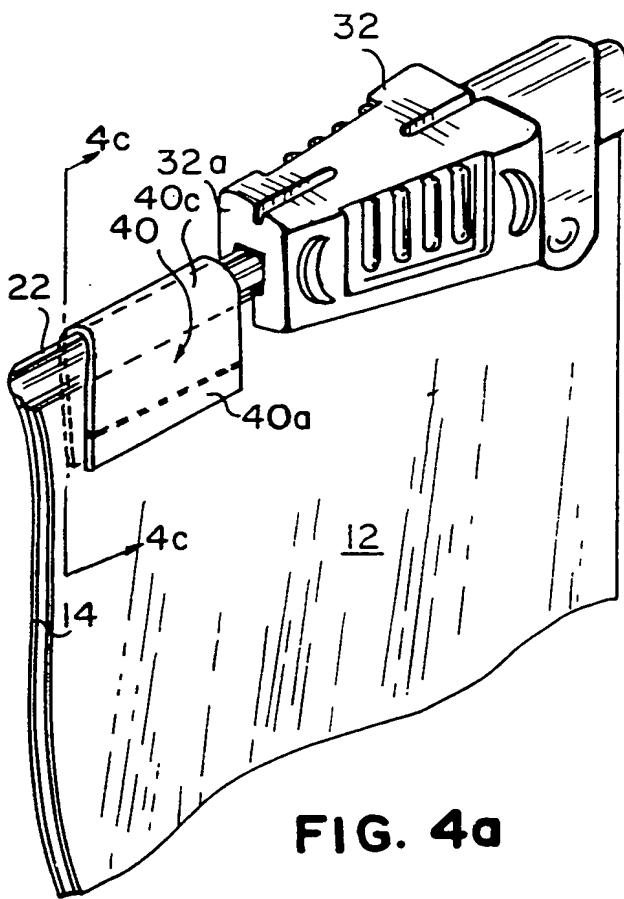


FIG. 4a

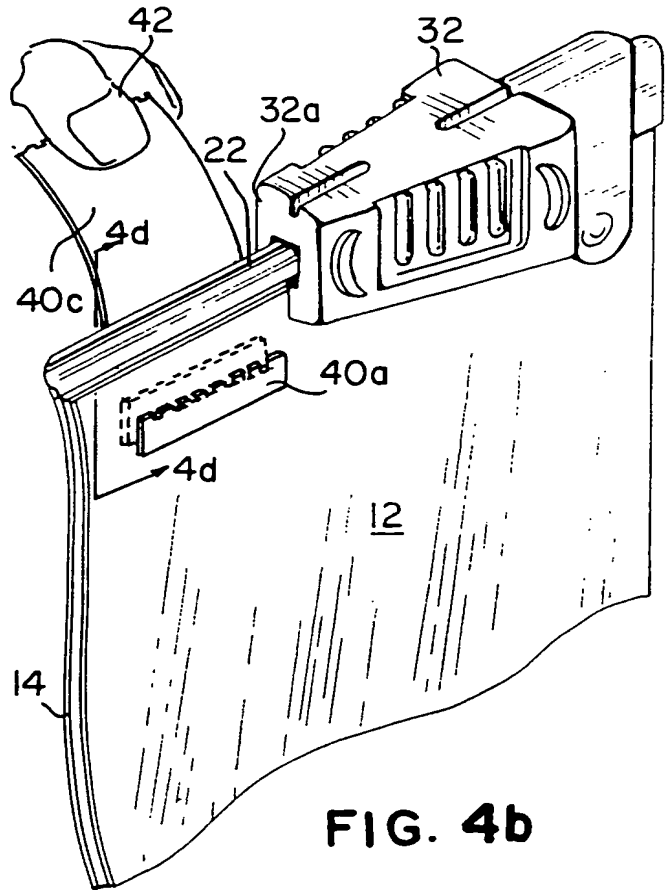


FIG. 4b

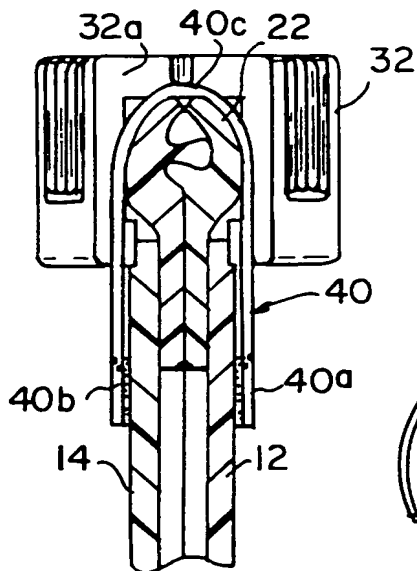


FIG. 4c

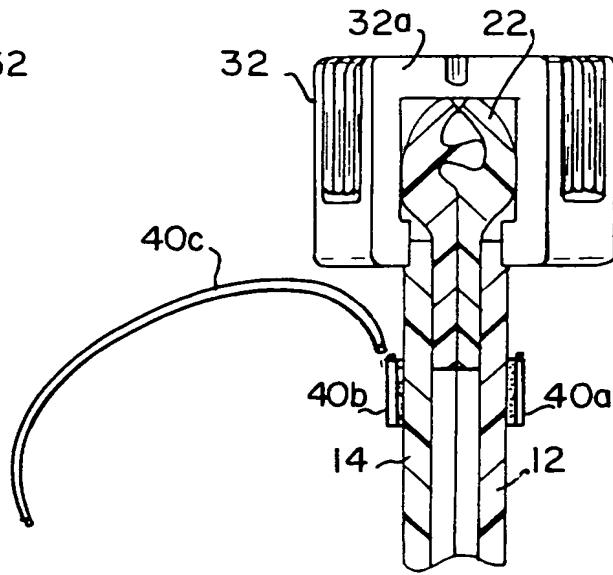
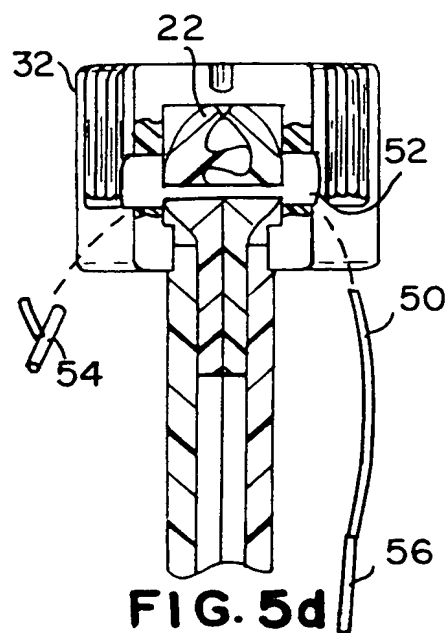
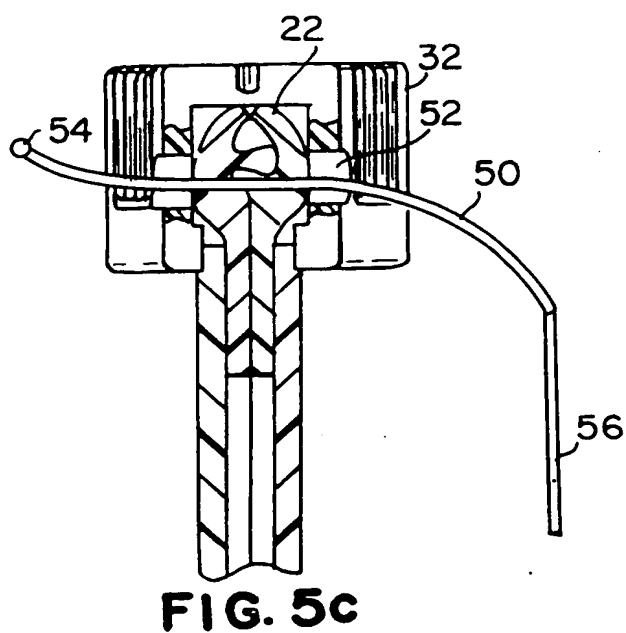
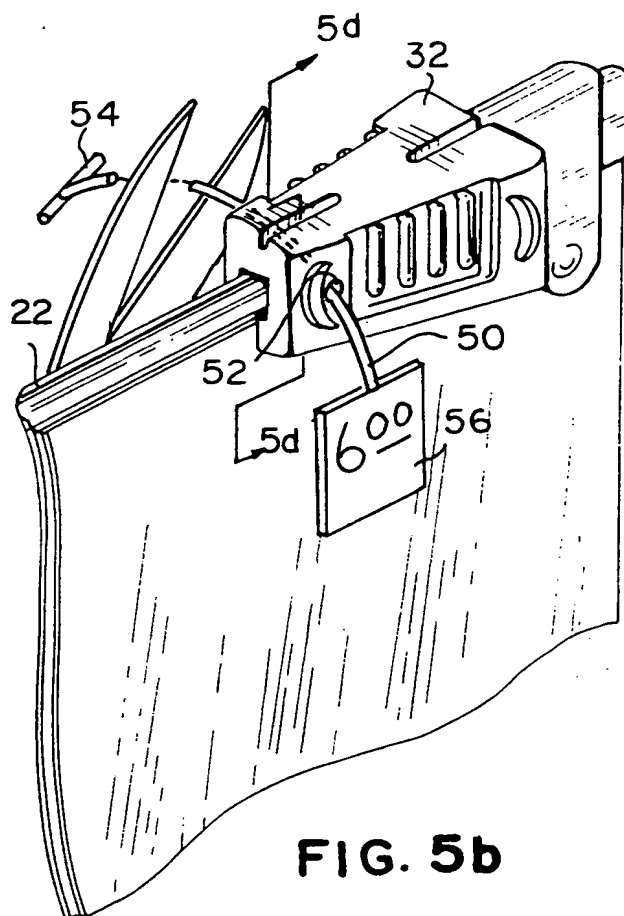
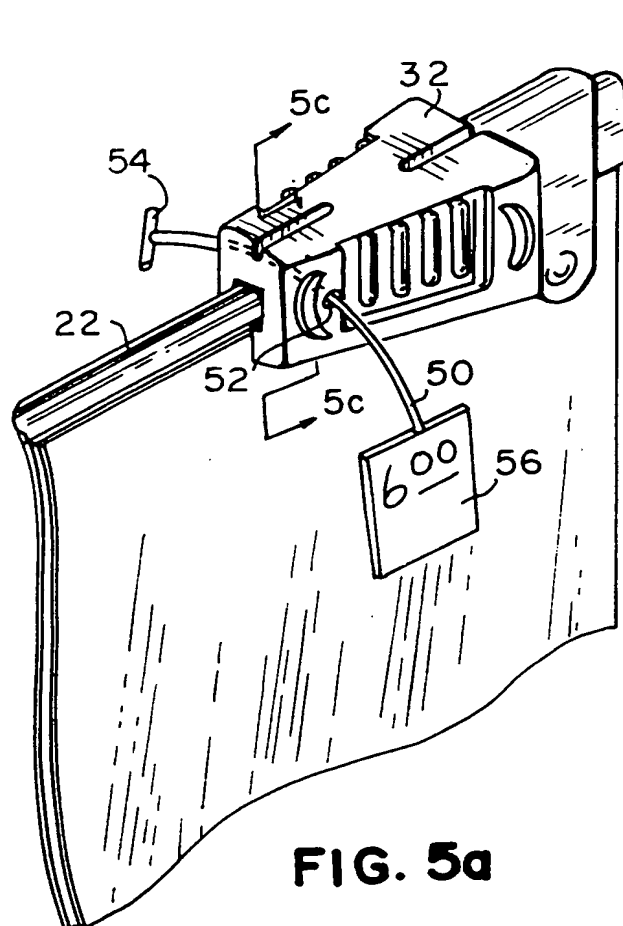
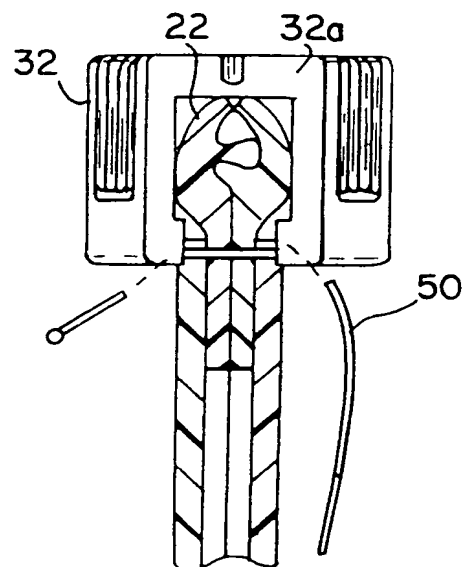
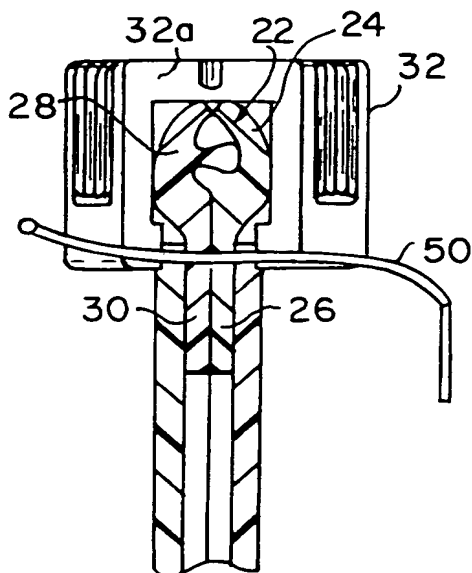
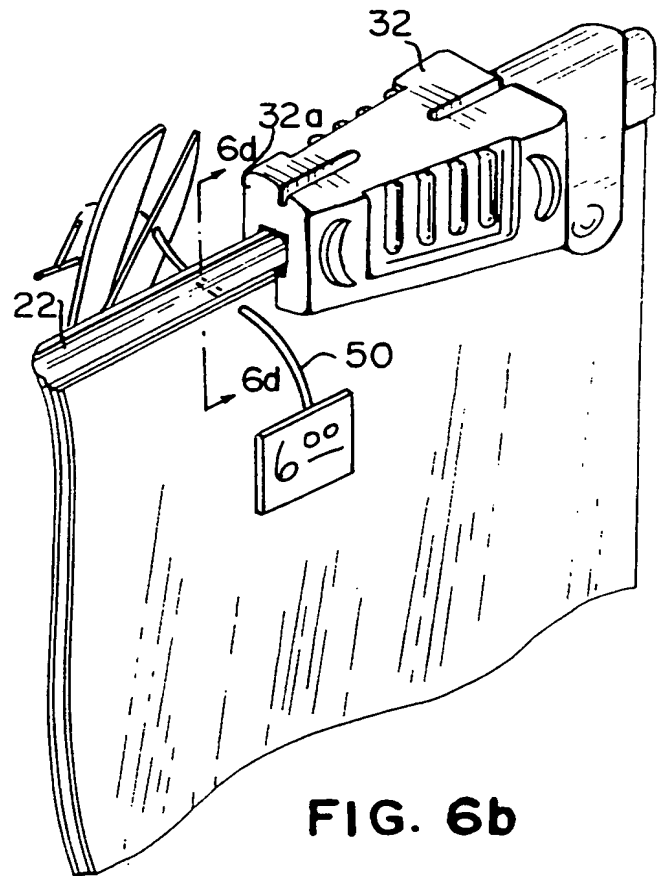
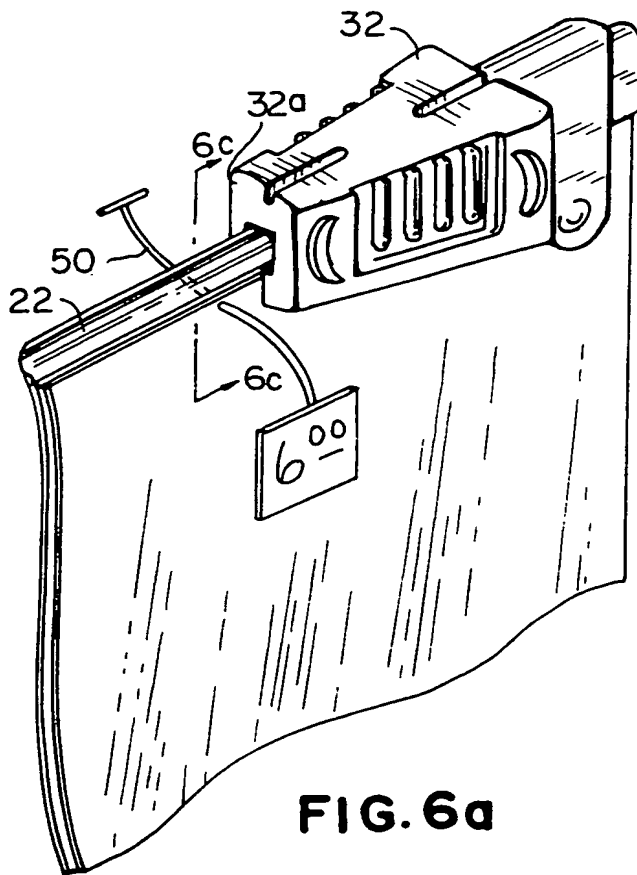


FIG. 4d

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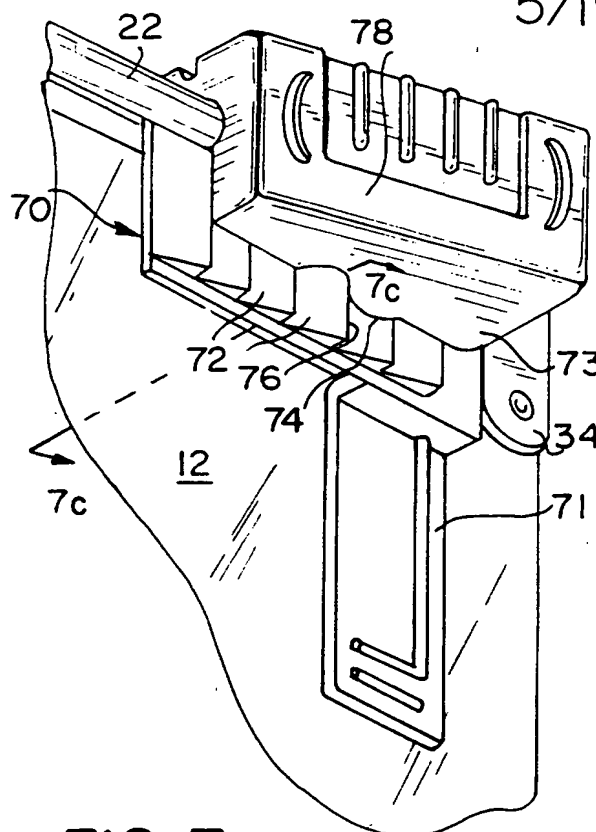


FIG. 7a

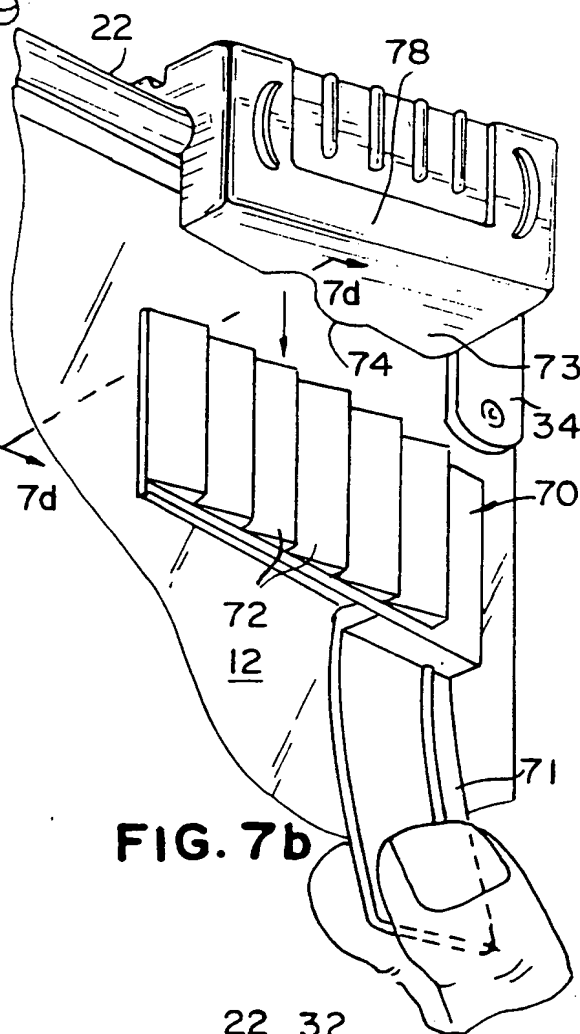


FIG. 7b

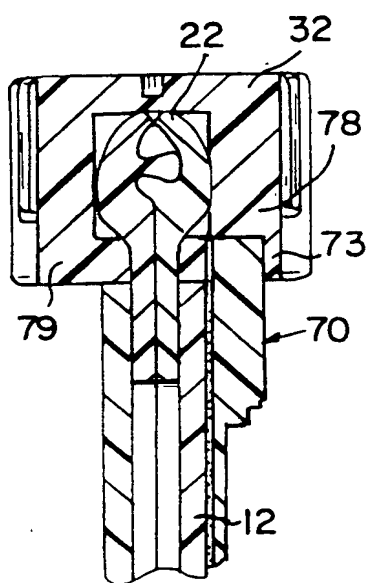


FIG. 7c

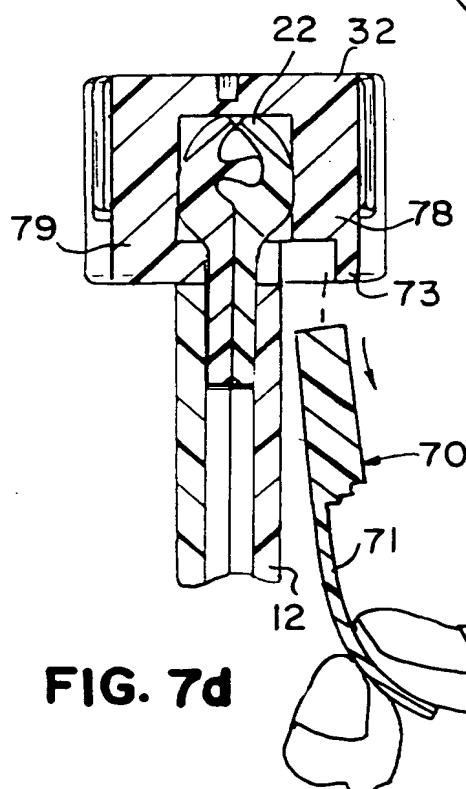
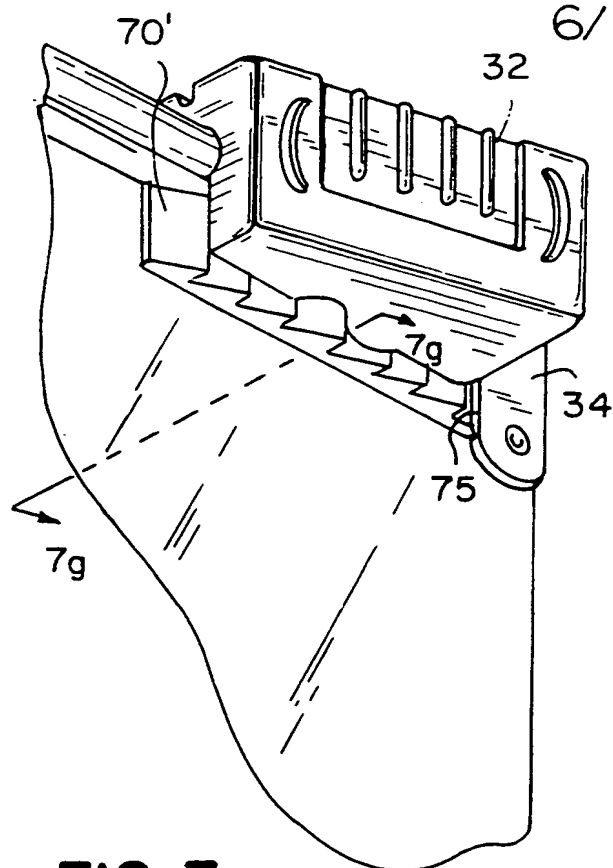
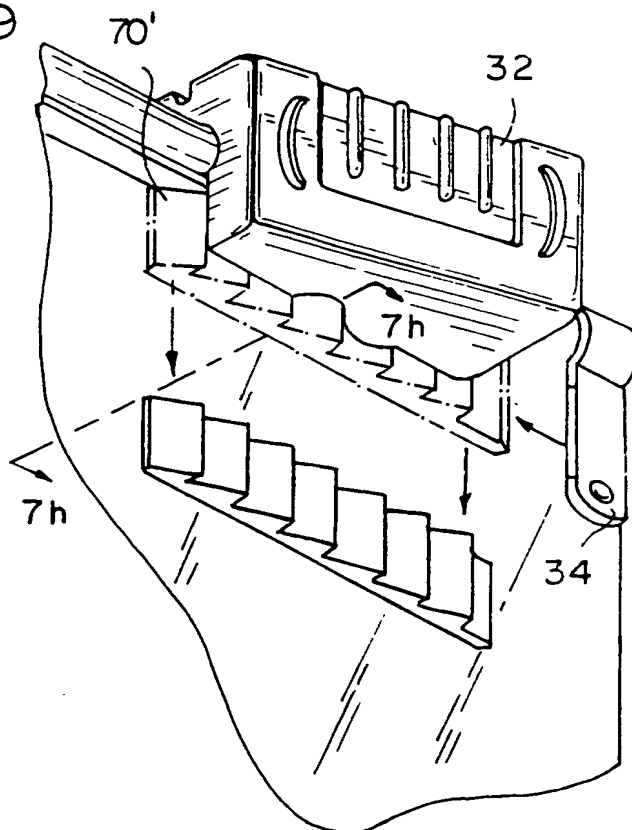
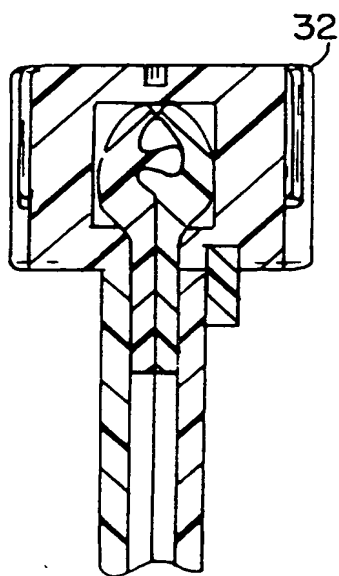
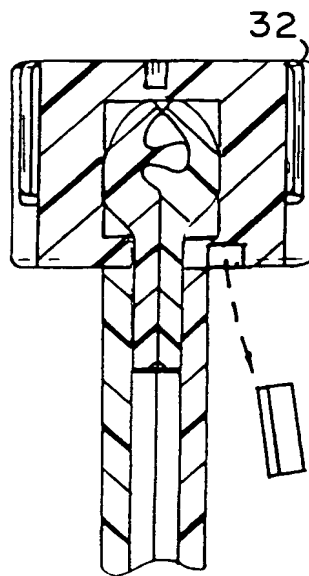


FIG. 7d

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**FIG. 7e****FIG. 7f****FIG. 7g****FIG. 7h**

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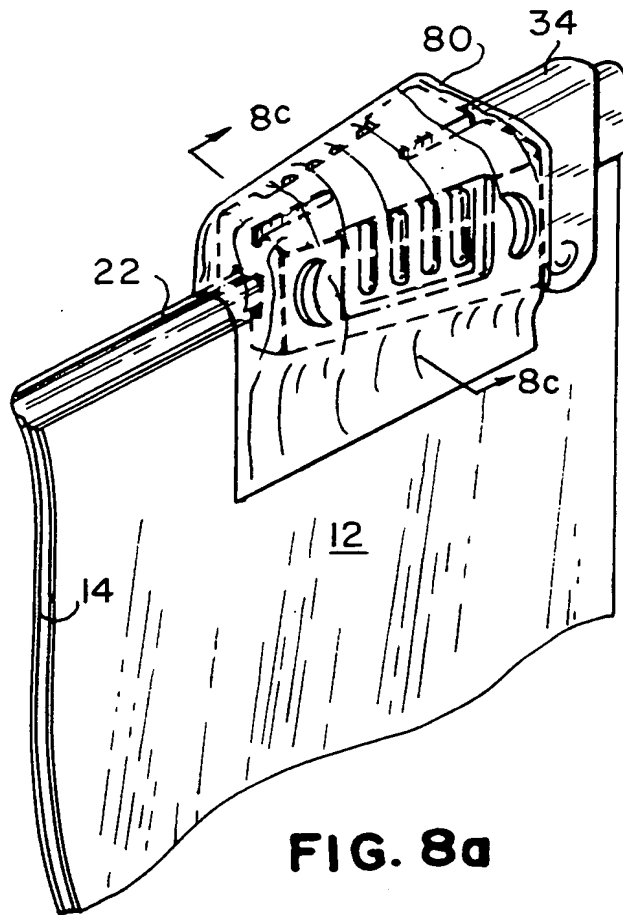


FIG. 8a

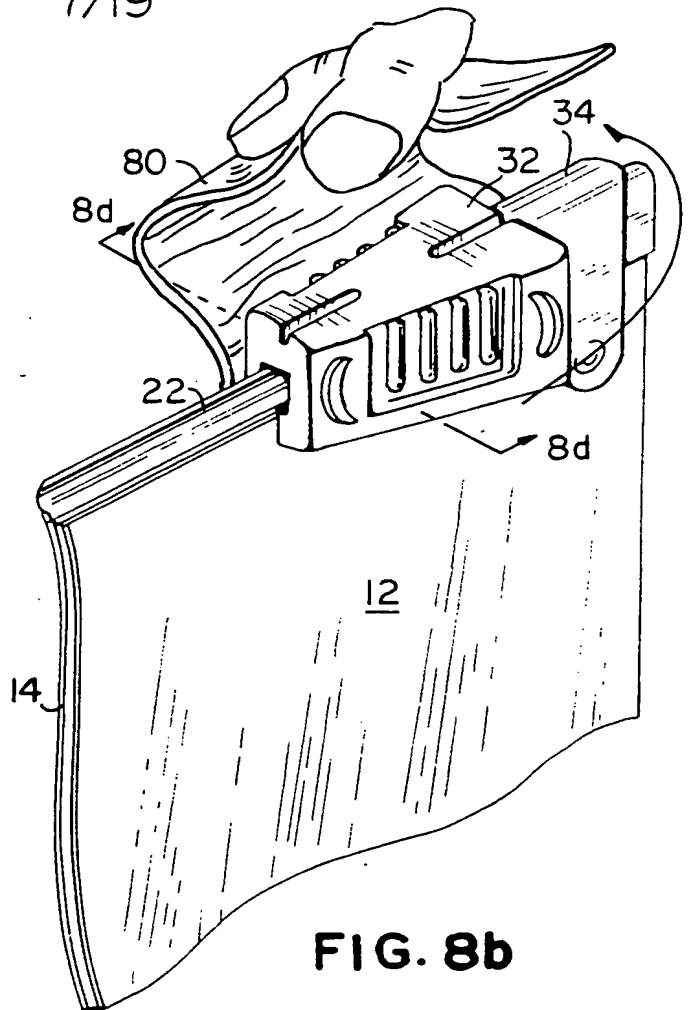


FIG. 8b

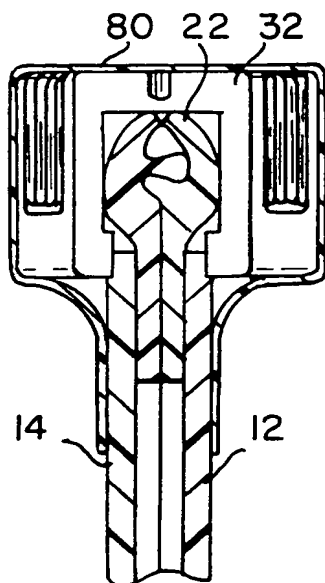


FIG. 8c

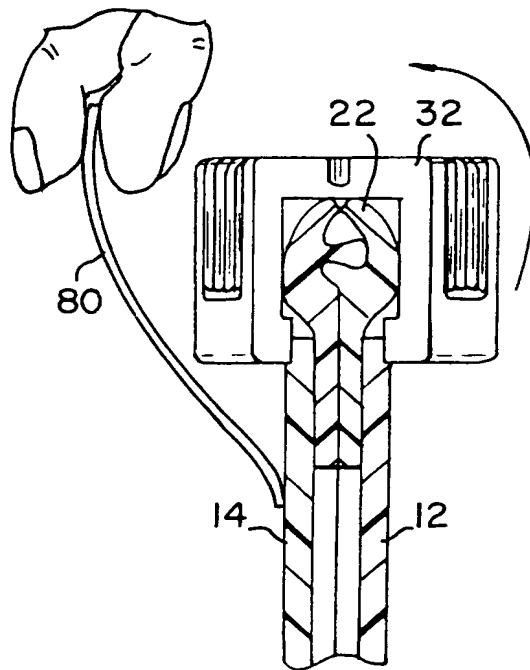
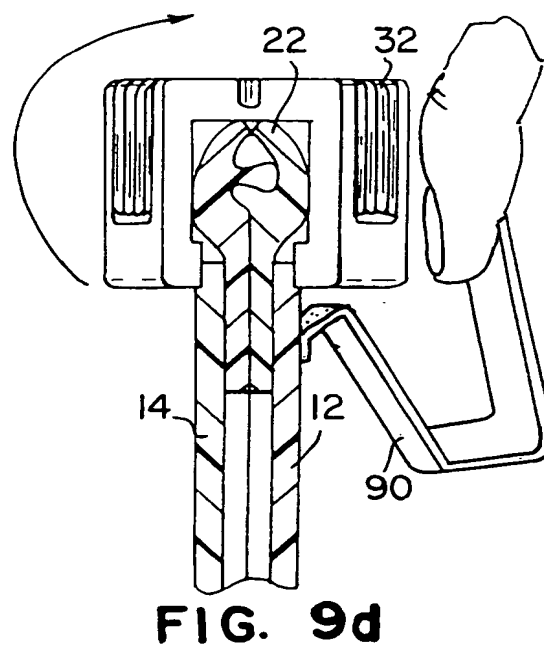
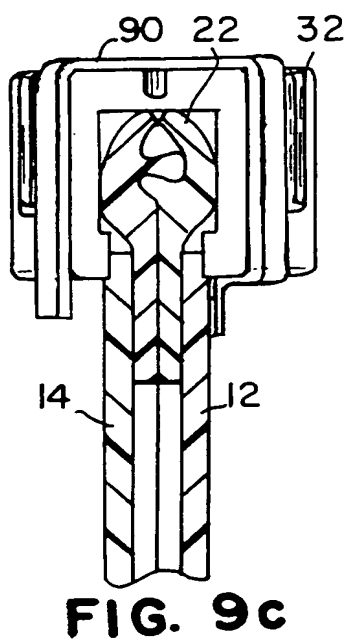
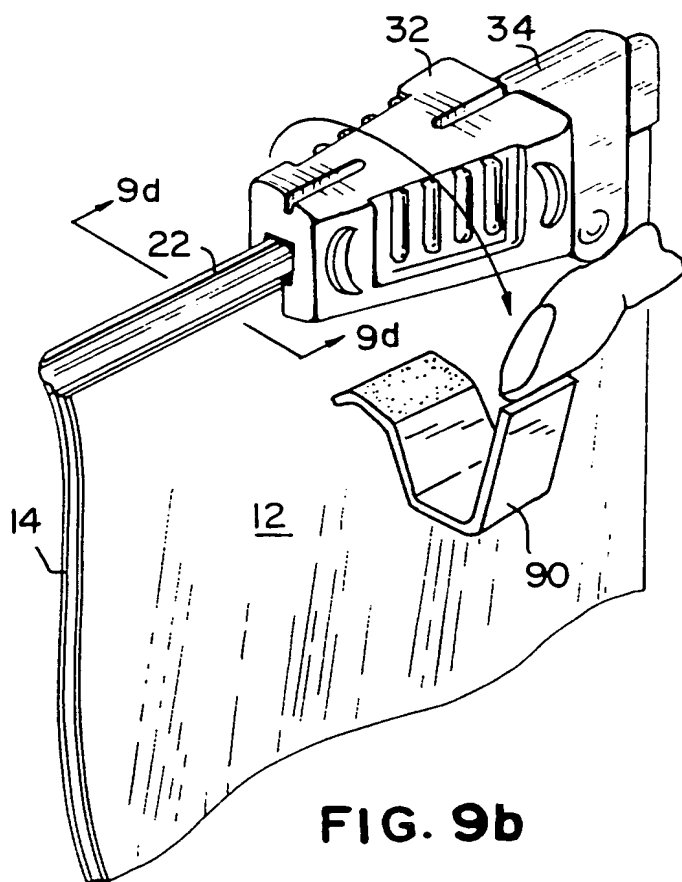
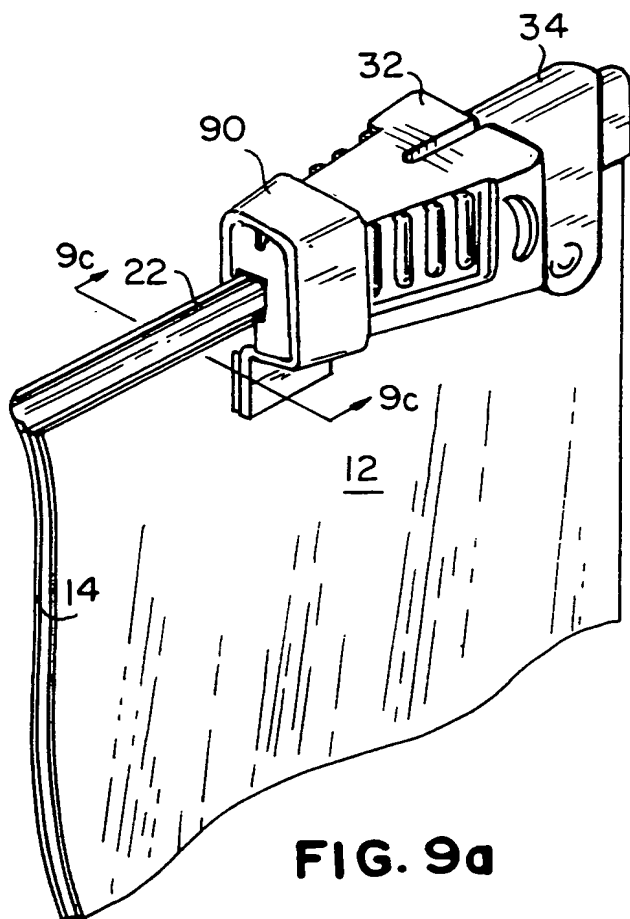


FIG. 8d

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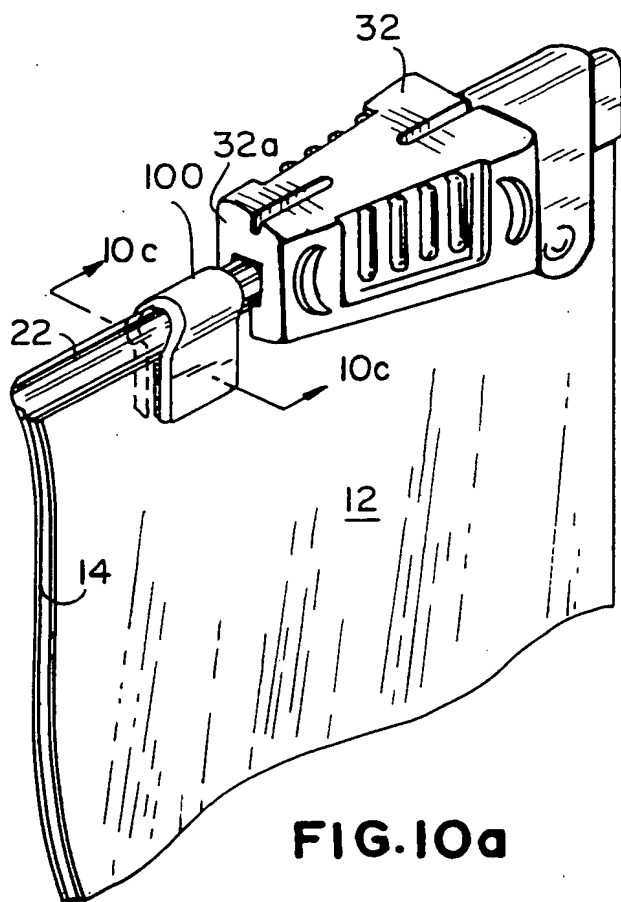


FIG. 10a

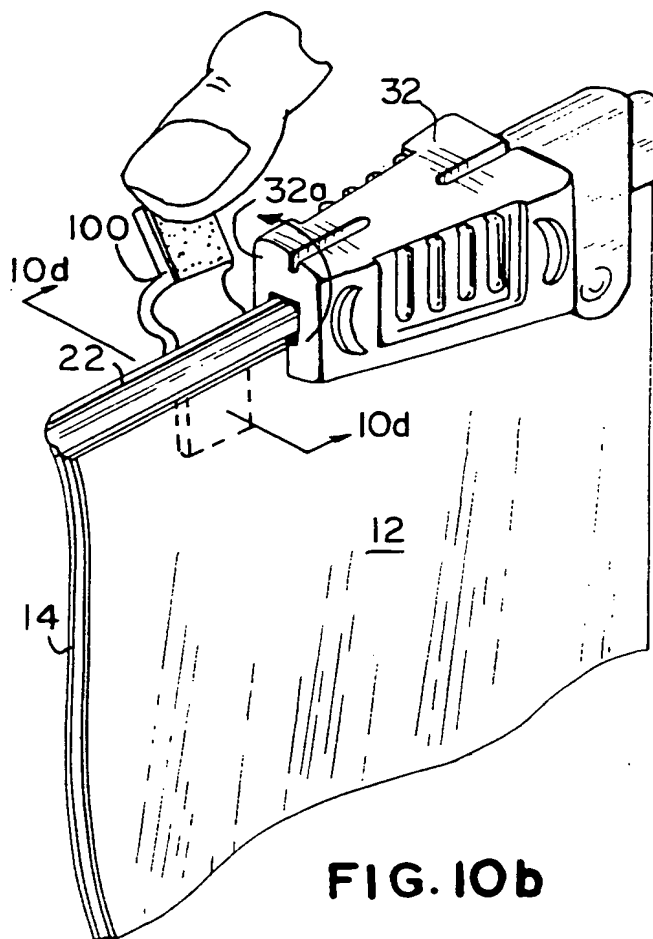


FIG. 10b

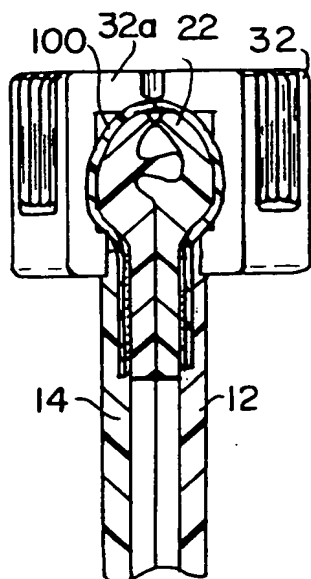


FIG. 10c

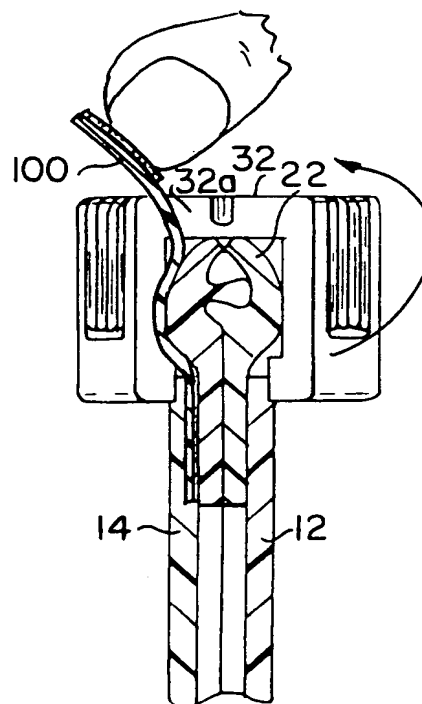
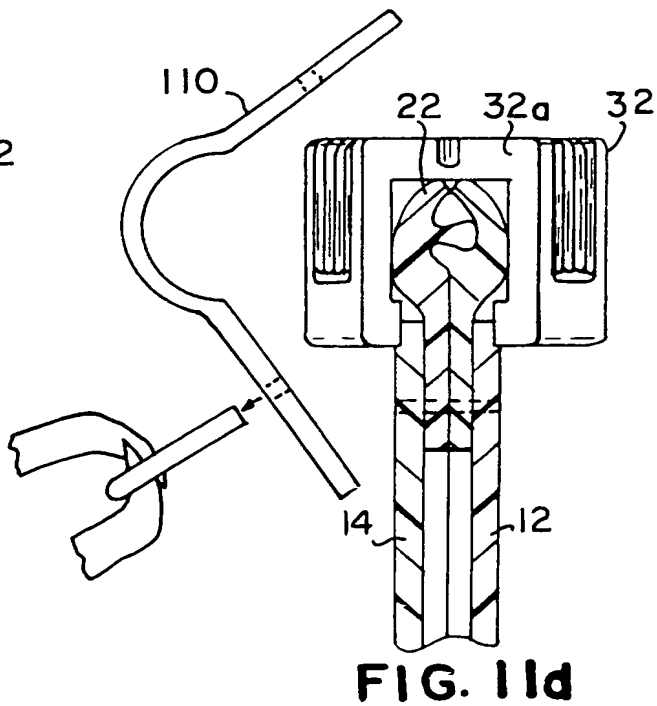
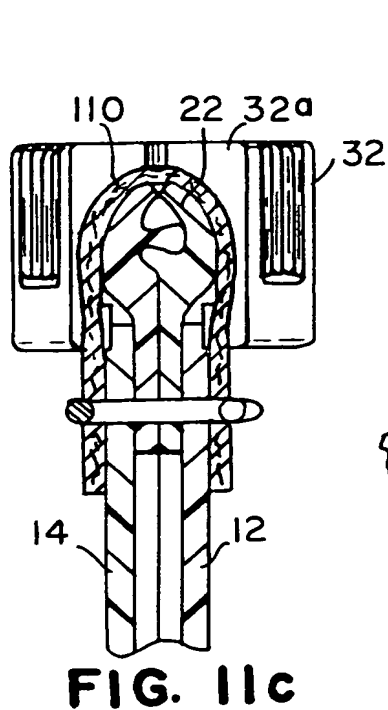
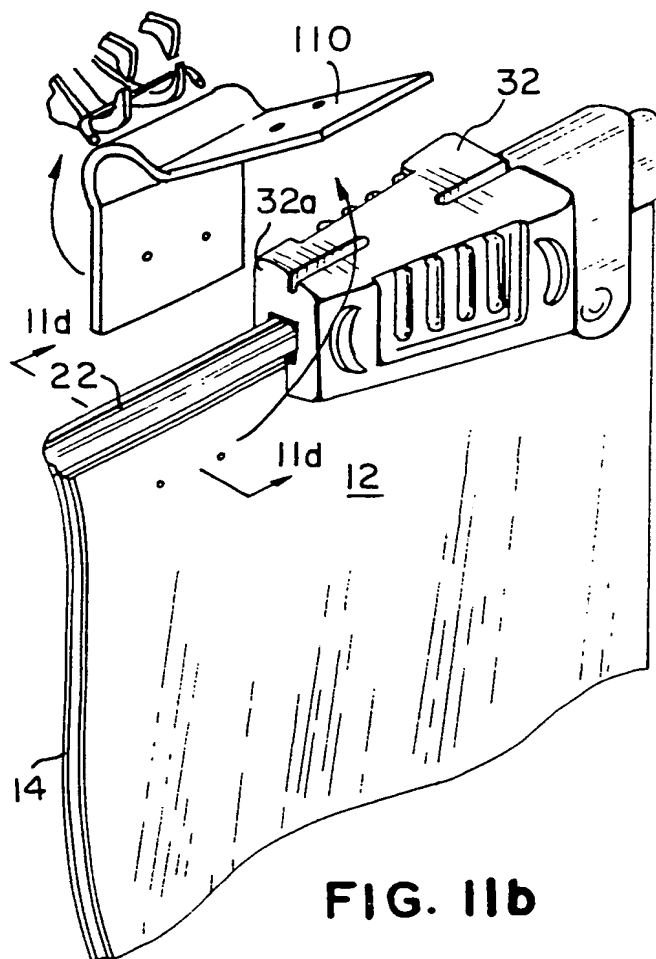
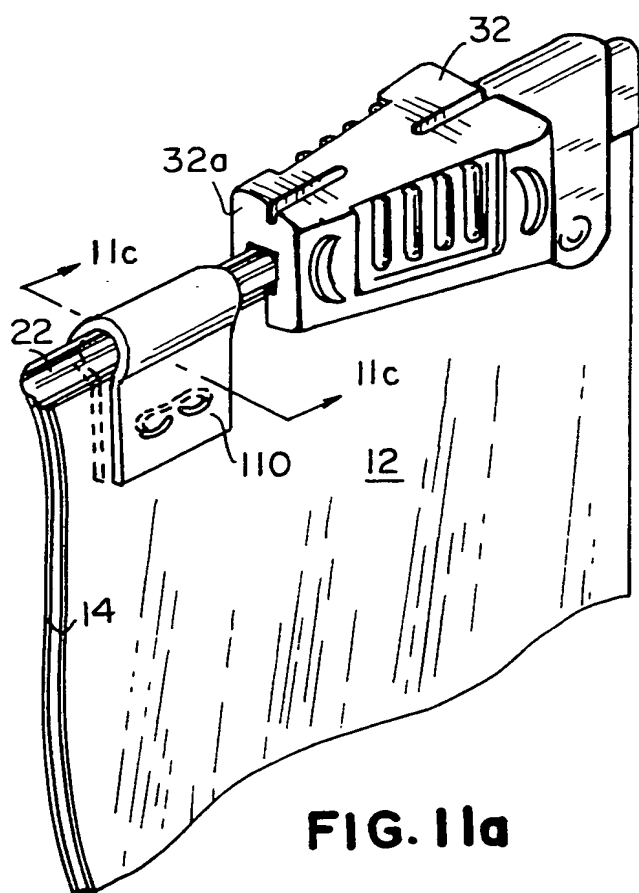


FIG. 10d

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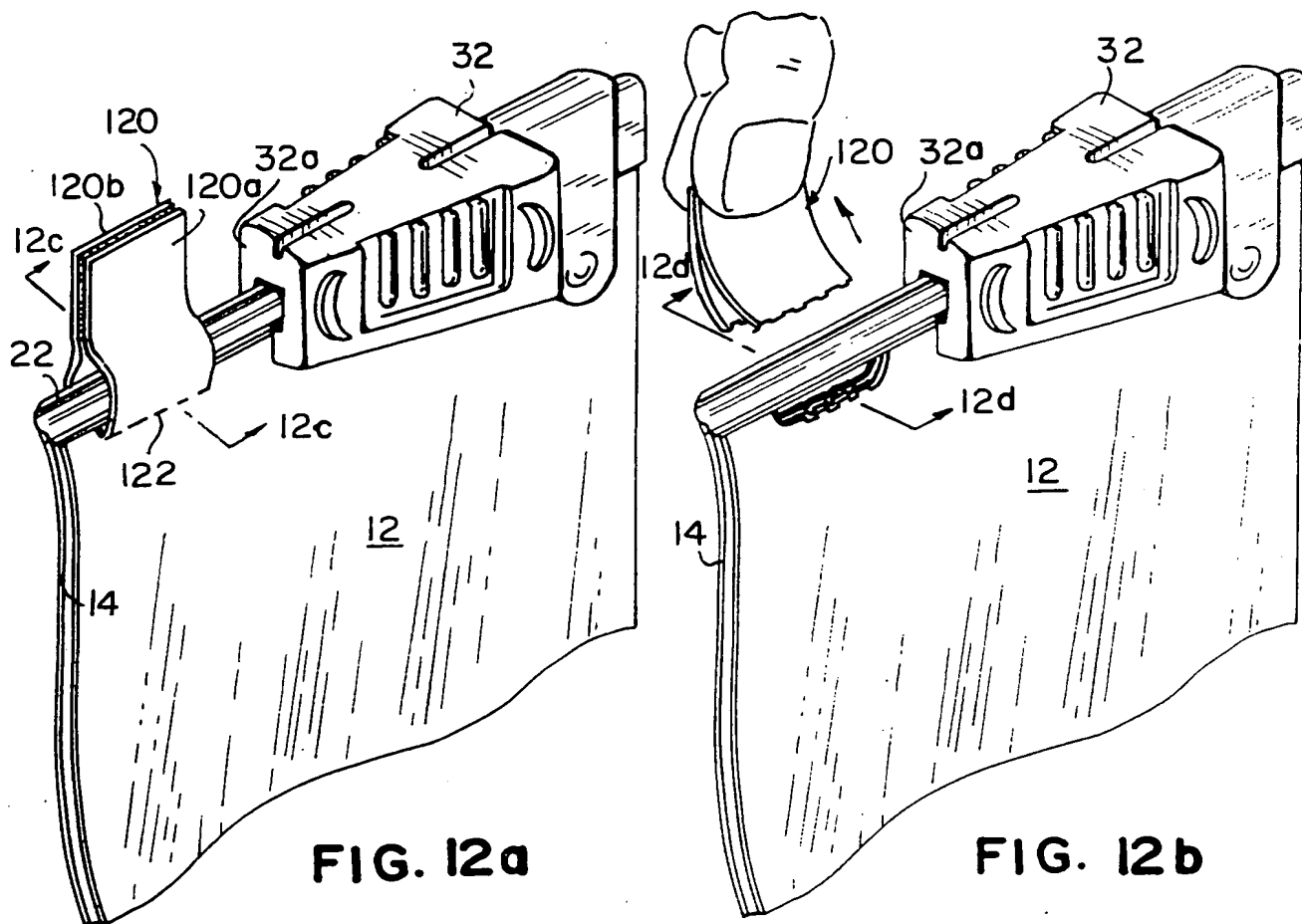


FIG. 12a

FIG. 12b

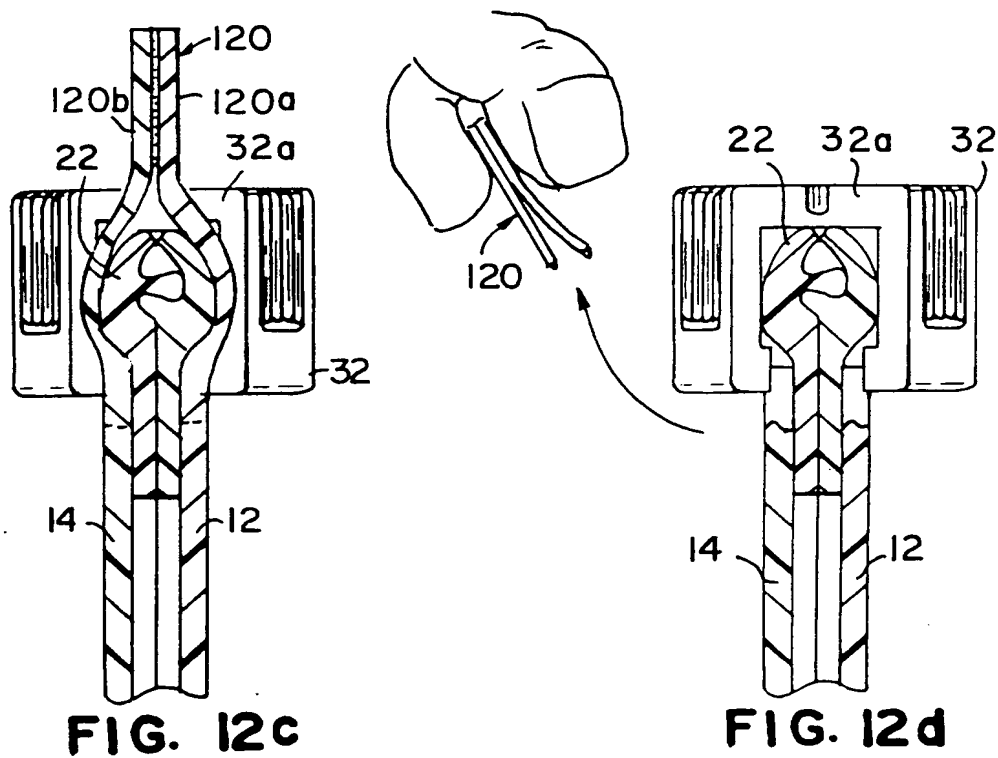


FIG. 12c

FIG. 12d

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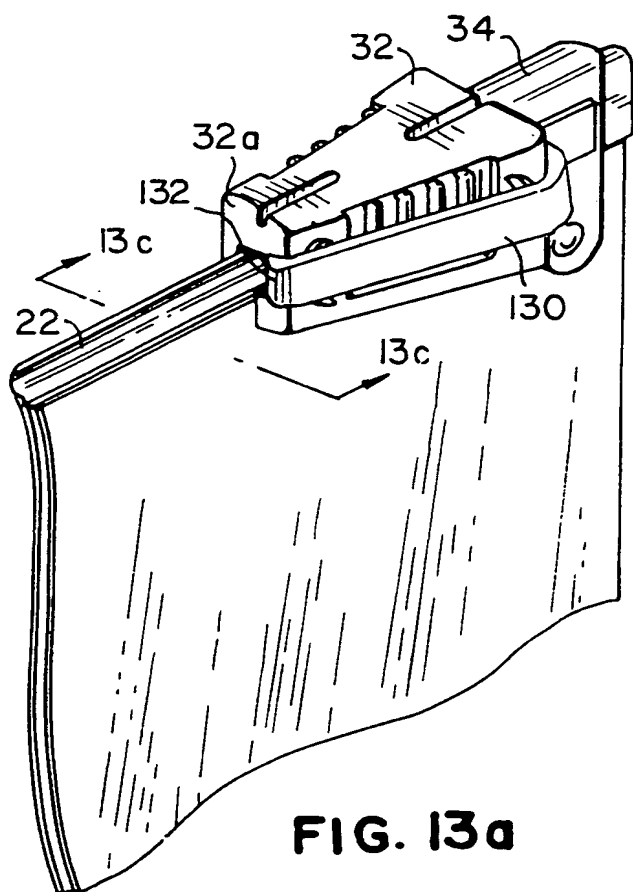


FIG. 13a

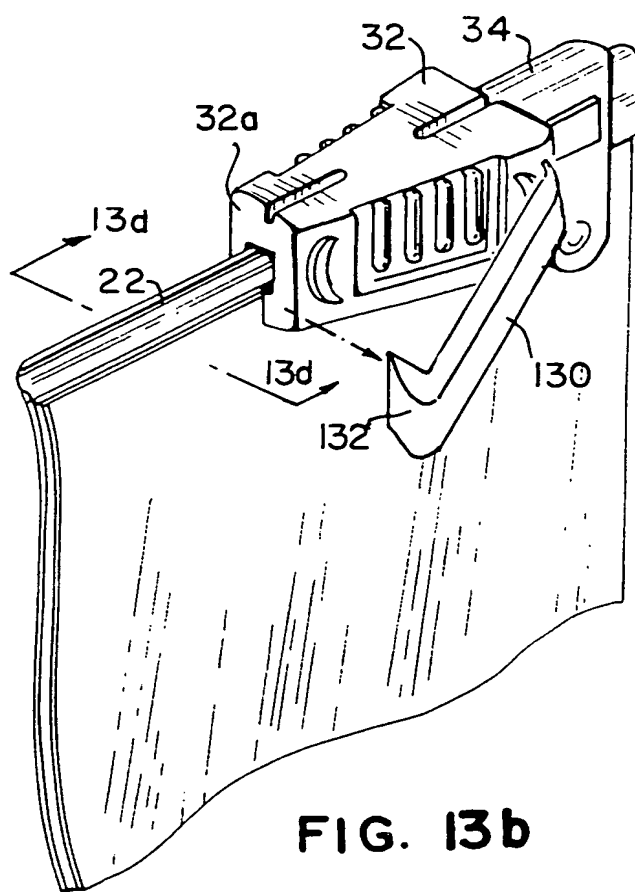


FIG. 13b

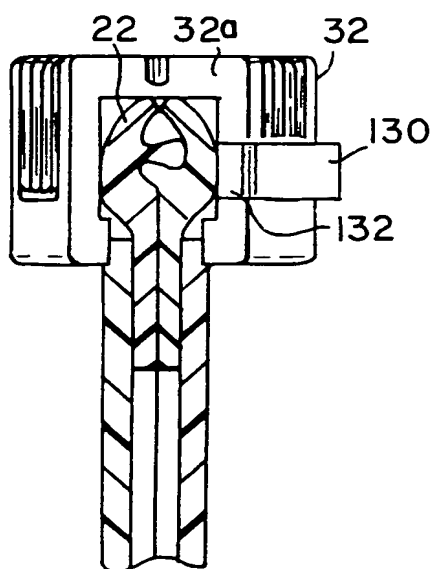


FIG. 13c

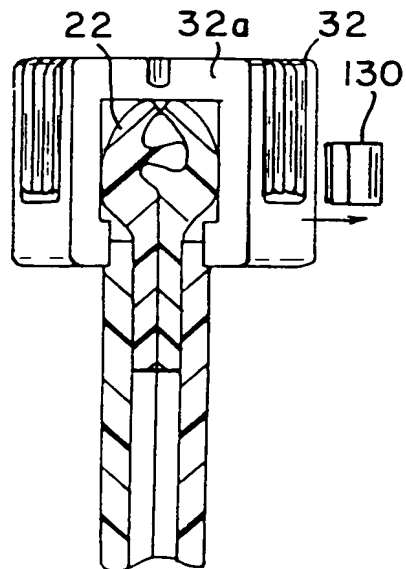


FIG. 13d

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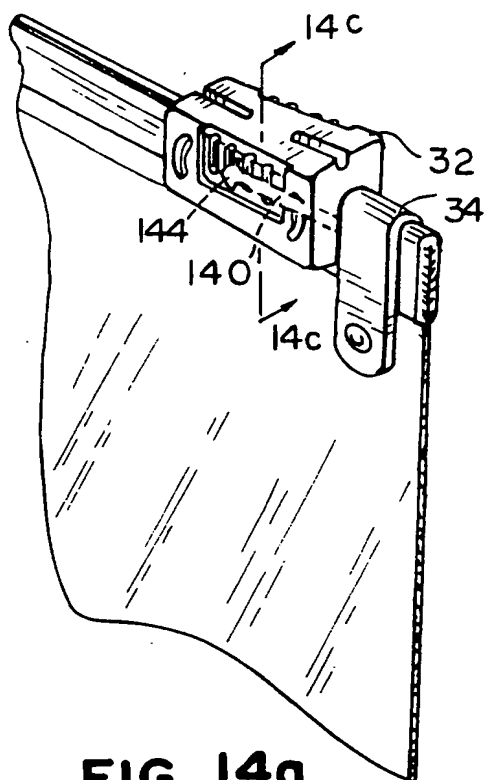


FIG. 14a

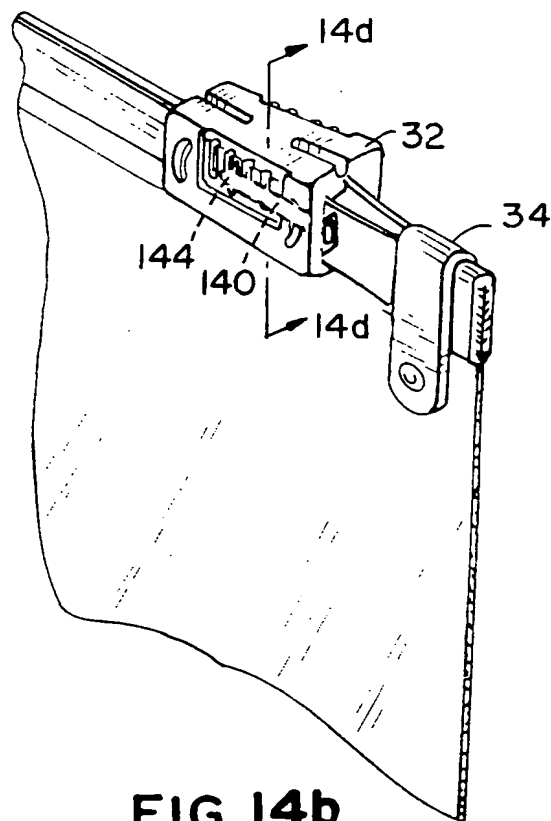


FIG. 14b

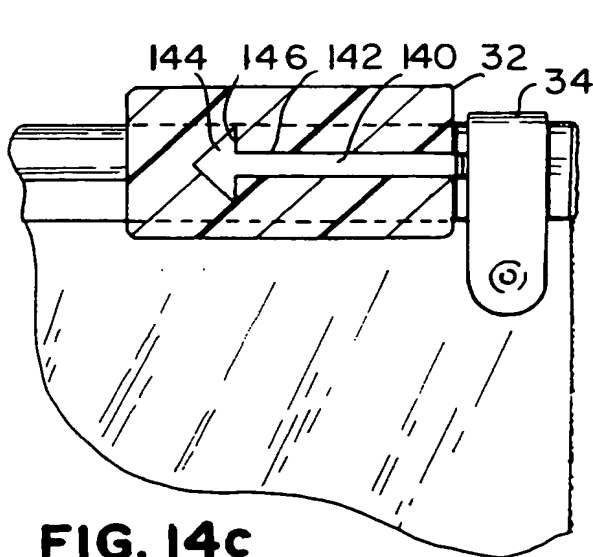


FIG. 14c

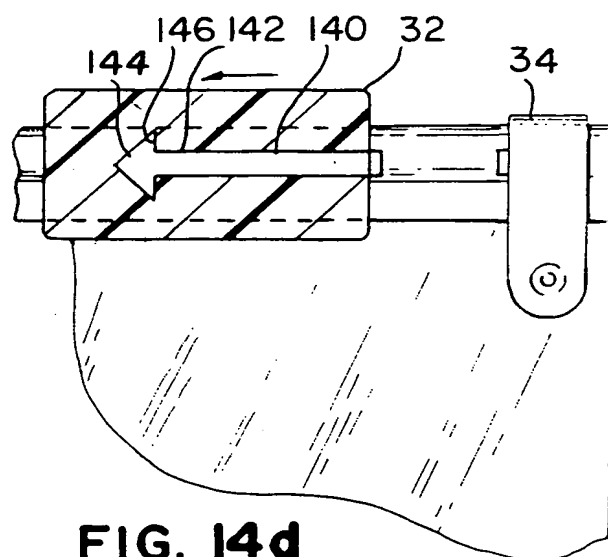


FIG. 14d

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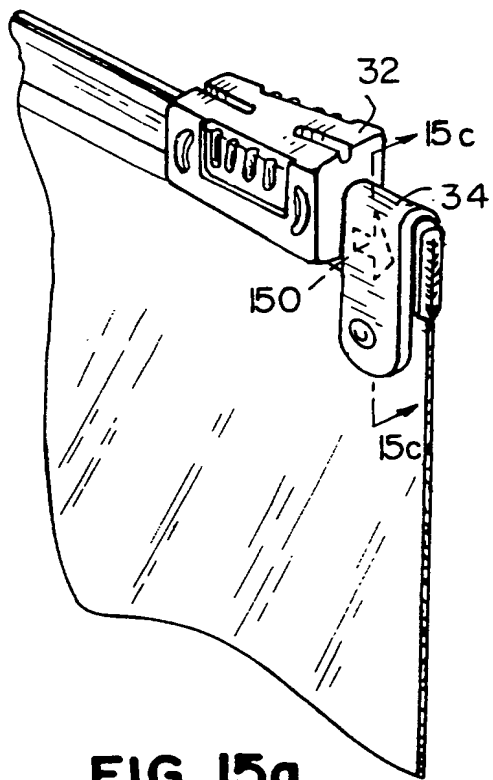


FIG. 15a

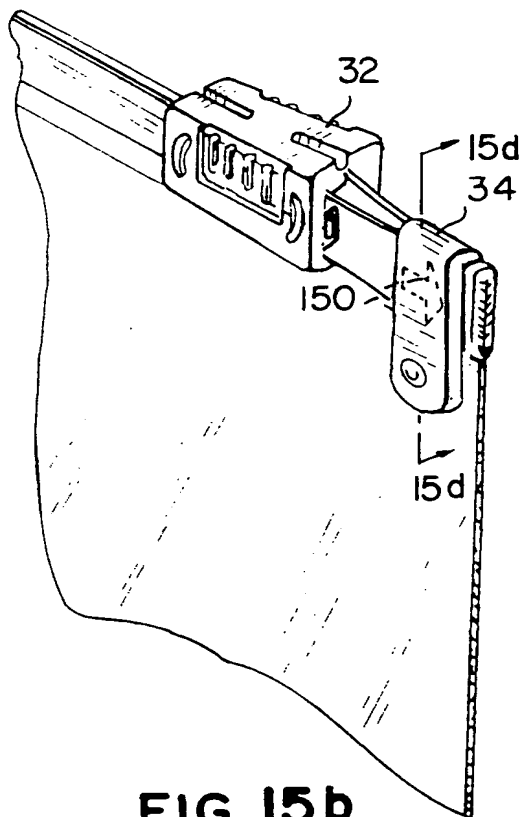


FIG. 15b

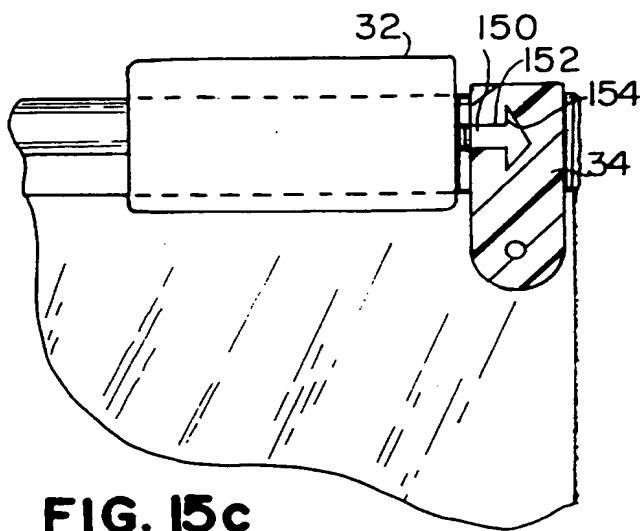


FIG. 15c

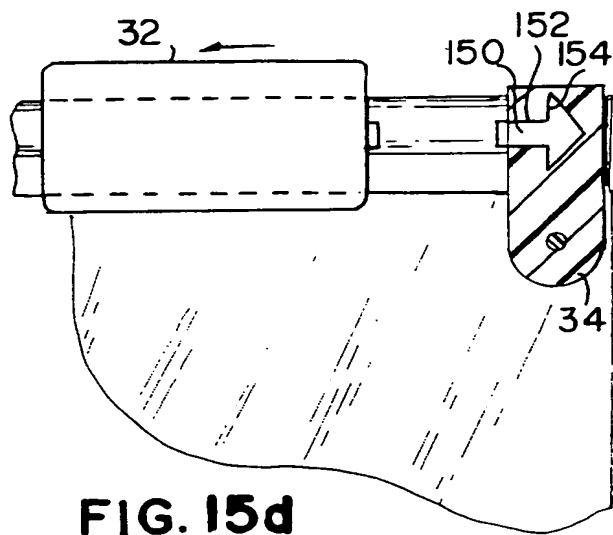


FIG. 15d

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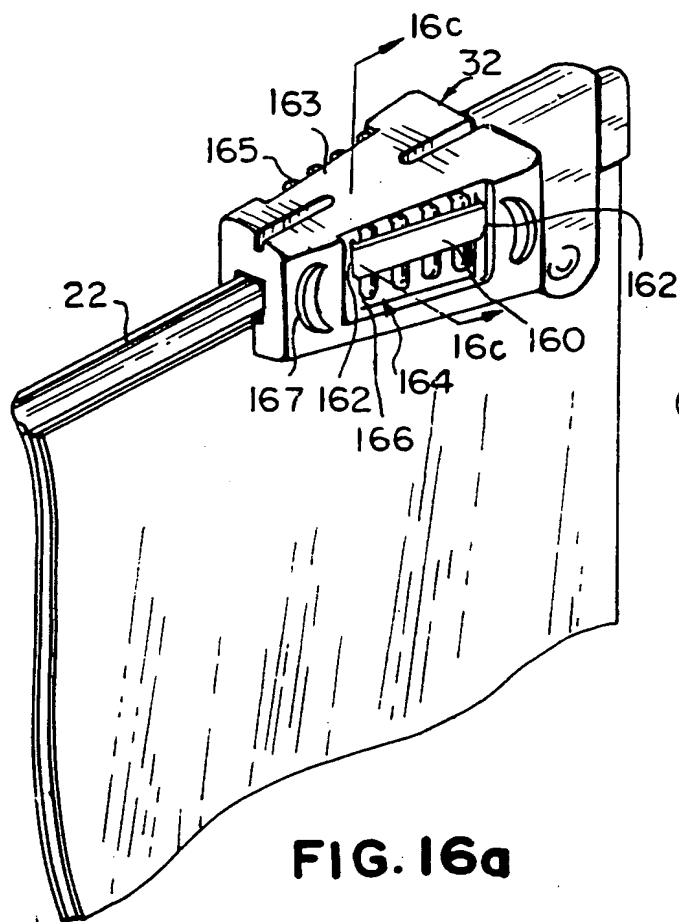


FIG. 16a

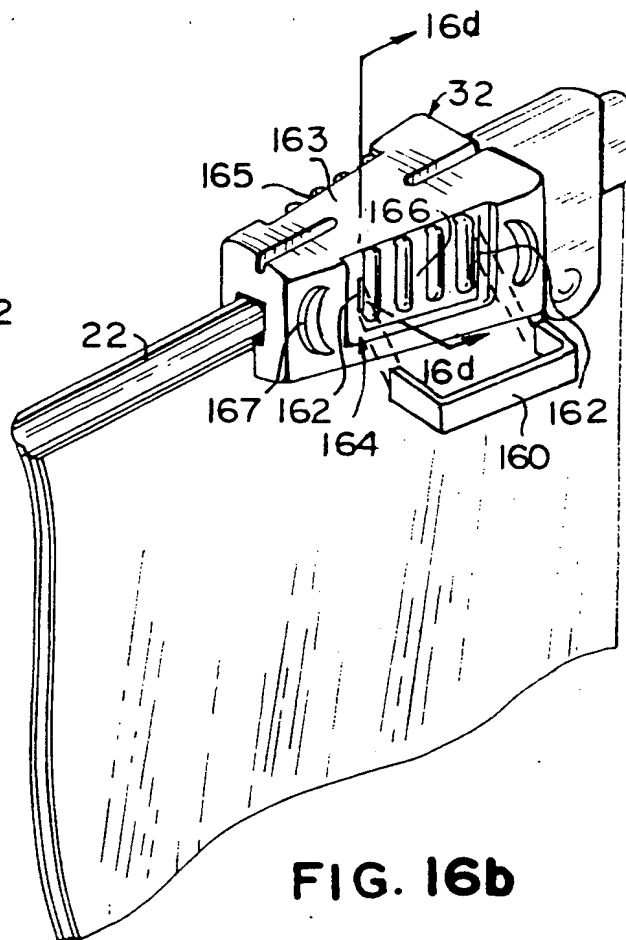


FIG. 16b

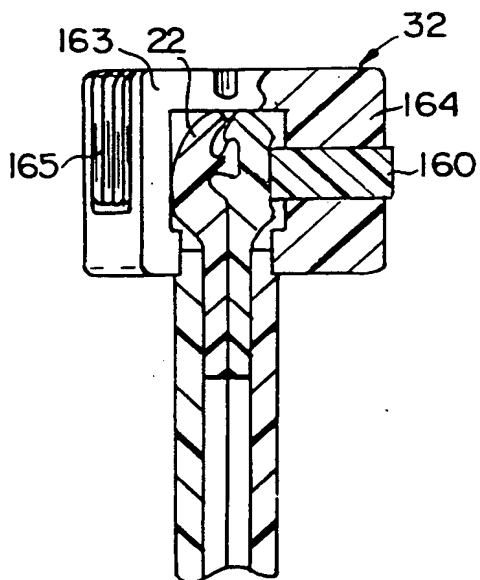


FIG. 16c

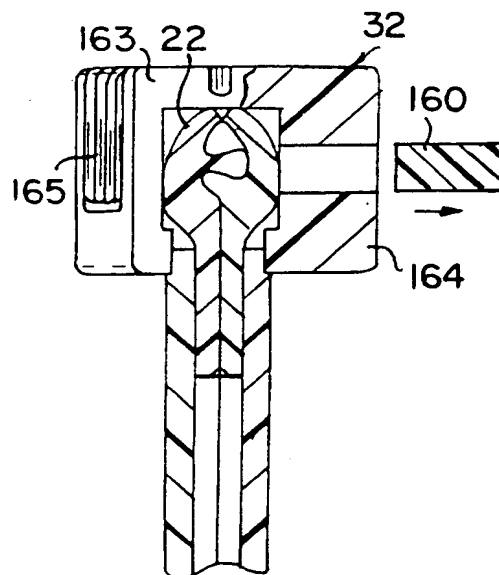


FIG. 16d

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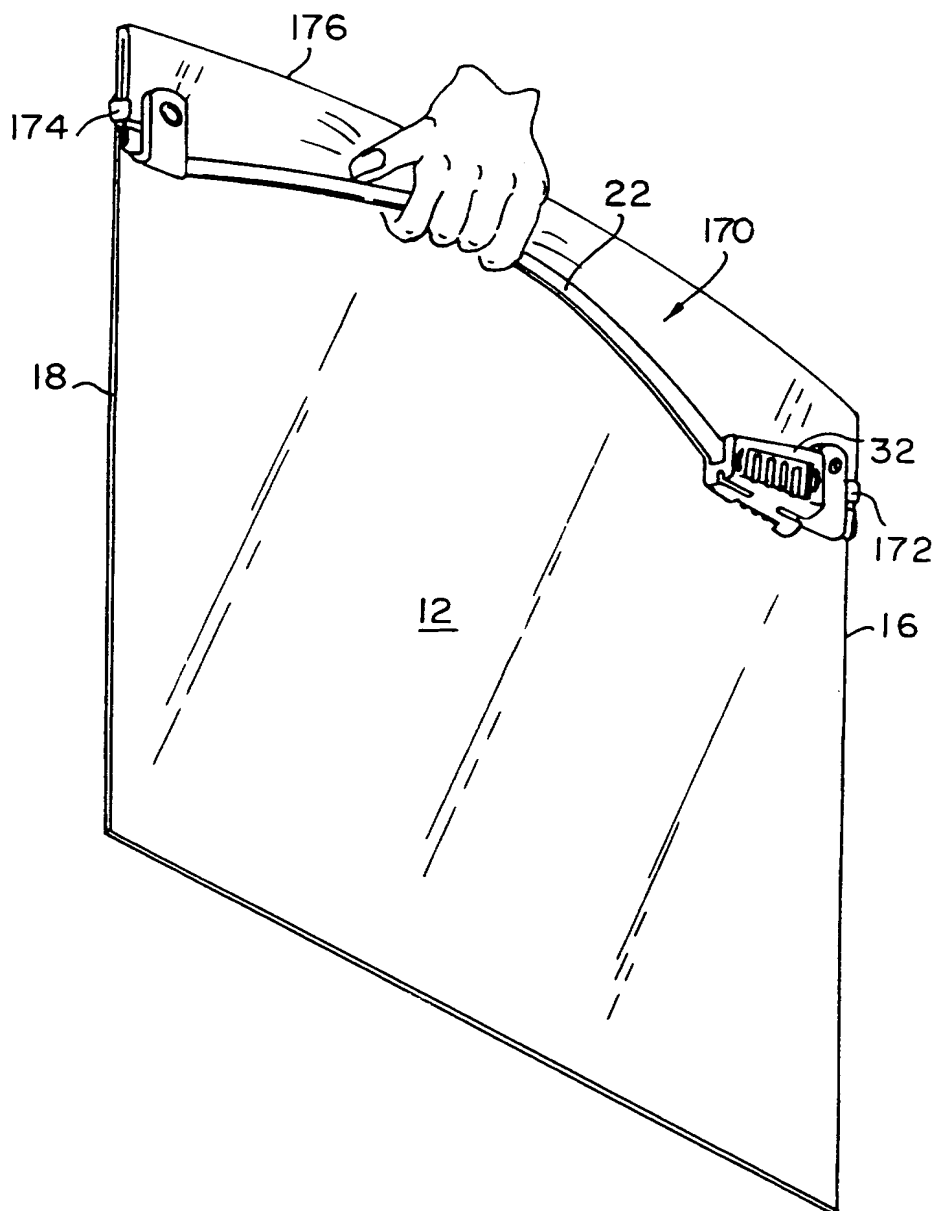


FIG. 17a

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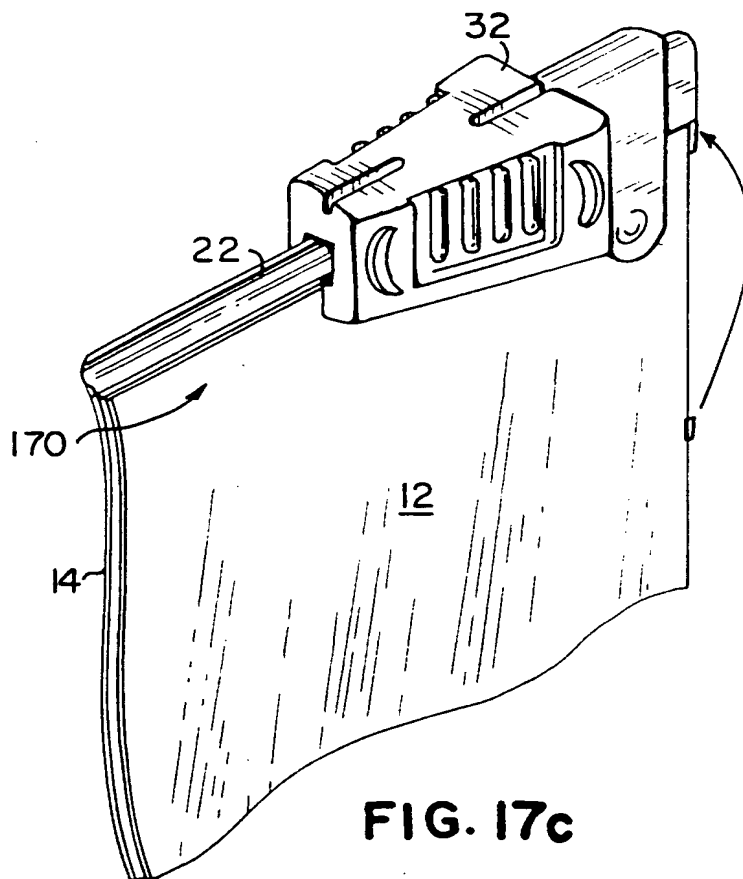
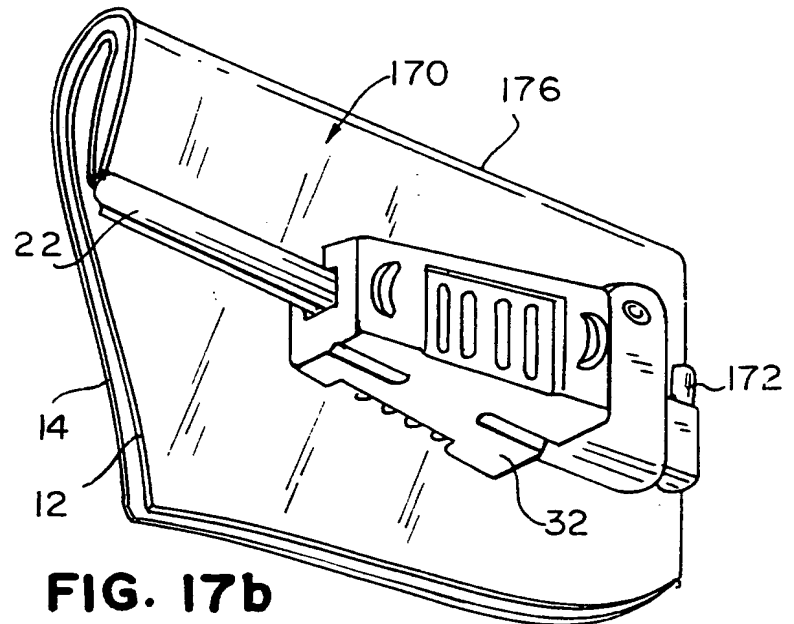


FIG. 17c

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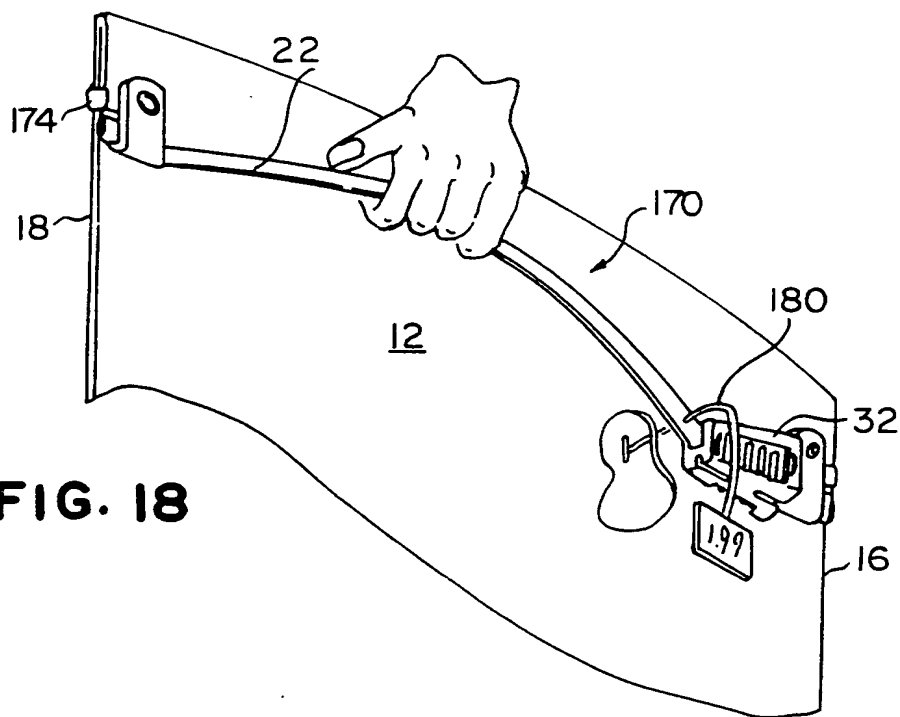


FIG. 18

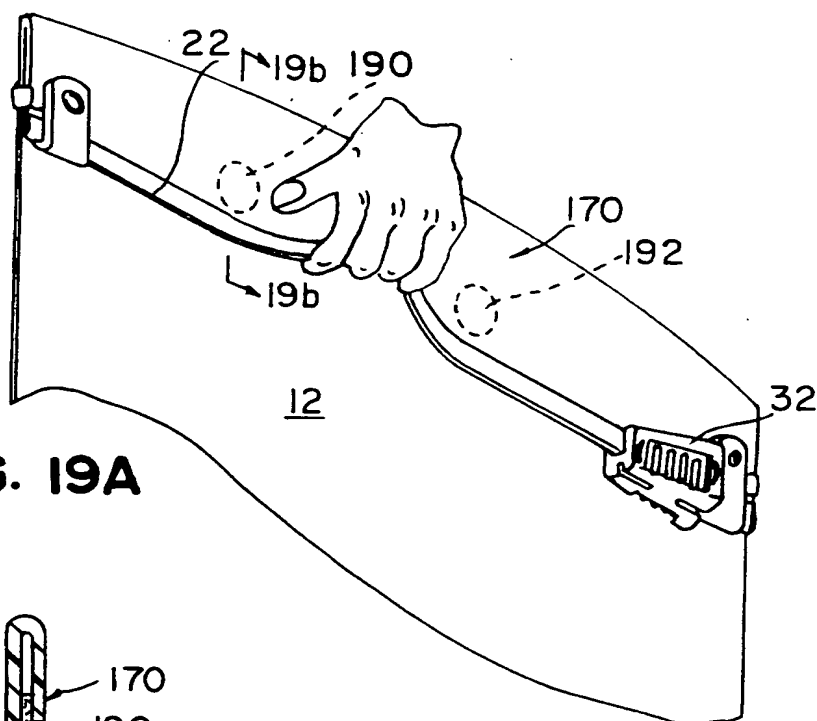


FIG. 19A

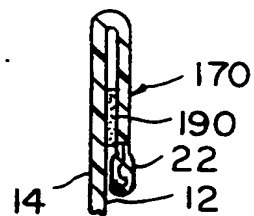
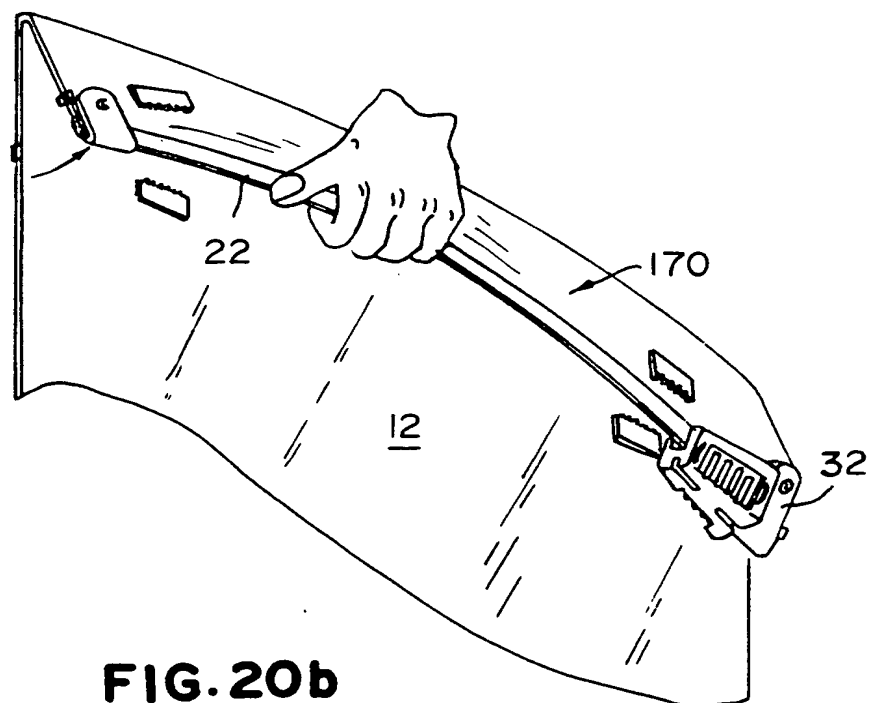
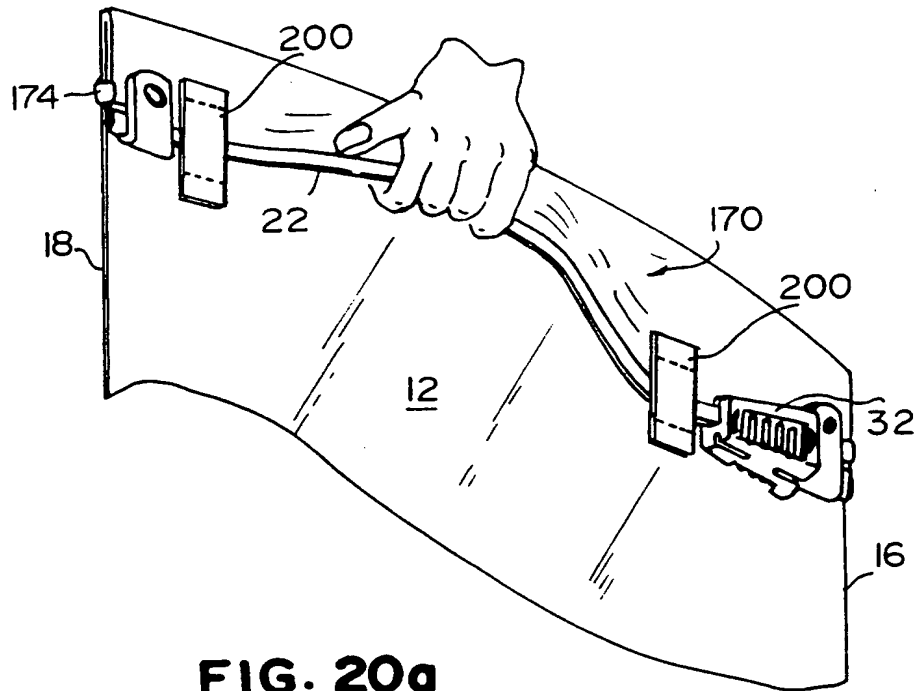


FIG. 19B

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INTERNATIONAL SEARCH REPORT

International Application No

PLI/US 99/14980

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A44B19/26 B65D33/34 B65D33/25

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A44B B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 669 715 A (TENNECO PACKAGING) 23 September 1997 (1997-09-23) cited in the application	1
A	column 3, line 23 -column 5, line 41 ---	14,16
Y	EP 0 405 995 A (OSCAR MAYER FOODS CORPORATION) 2 January 1991 (1991-01-02)	1
A	column 7, line 50 -column 8, line 39; claims 1,14-17; figures 10-13	4,5
X	---	41
X	WO 98 21993 A (TENNECO PACKAGING) 28 May 1998 (1998-05-28) cited in the application claims 1-5; figures 1-4 ---	32
	--- -/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

17 January 2000

Date of mailing of the international search report

08.02.00

Name and mailing address of the ISA

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Authorized officer

Garnier, F

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/14980

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/14980

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 109 793 A (BOND ASSOCIATES LTD) 30 May 1984 (1984-05-30) page 2, line 22 -page 3, line 26; figures 1-4	38,39
X,P	FR 2 771 387 A (G. VALMONT) 28 May 1999 (1999-05-28) page 2, line 25 -page 3, line 36; claim 1; figures 1-5	1,4-6

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-17

tamper-evident means preventing the slider to open the zipper using means such a strip or tabs or a sleeve covering the slider

2. Claims: 18-25

tamper-evident means using a pin passing through said zipper

3. Claims: 26-31

tamper-evident means using a stepped member

4. Claims: 32-37

tamper-evident means using a latch member

5. Claims: 38-40

tamper-evident means using at least a slot on the slider working with a retaining member

6. Claims: 41-49

tamper-evident-means using the folding of the mouth of the bag maintained temporaly secure to the remainder of the bag by a breakable connection

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 99/14980

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5669715 A	23-09-1997	AU 3980897 A EP 0921987 A WO 9806635 A	06-03-1998 16-06-1999 19-02-1998
EP 405995 A	02-01-1991	AT 102154 T CA 2019761 A DE 69006944 D DE 69006944 T DK 405995 T ES 2053113 T JP 3056249 A US 5456928 A	15-03-1994 31-12-1990 07-04-1994 07-07-1994 28-03-1994 16-07-1994 11-03-1991 10-10-1995
WO 9821993 A	28-05-1998	US 5775812 A AU 4819497 A EP 0939594 A	07-07-1998 10-06-1998 08-09-1999
EP 0109793 A	30-05-1984	CA 1227772 A US 4602405 A	06-10-1987 29-07-1986
FR 2771387 A	28-05-1999	NONE	